WORK PLAN
FOR
REMEDIAL ACTION - OPERABLE UNIT 1 (SOILS)
AT
NAVAL WEAPONS RESERVE INDUSTRIAL PLANT
BETHPAGE, LONG ISLAND, NY

ISSUED:

OCTOBER 23, 1995

PREPARED FOR:

Northern Division
Naval Facilities Engineering Command
10 Industrial Highway
Lester, PA 19113

PREPARED BY:

Foster Wheeler Environmental Corporation
2300 Lincoln Highway
One Oxford Valley Way- Suite 200
Langhorne, PA 19047-1829

REMEDIAL ACTION CONTRACT NO. N62472-94-D-0398
DELIVERY ORDER NO. 0004

WORK PLAN FOR
REMEDIAL ACTION CONTRACT N62472-94-D-0398
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NAVAL WEAPONS RESERVE INDUSTRIAL PLANT - BETHPAGE
REMEDIAL ACTION - OPERABLE UNIT 1 (SOILS)

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1.0 INTRODUCTION

Foster Wheeler Environmental Corporation (Foster Wheeler) has been contracted by the Northern Division, Naval Facilities Engineering Command to perform the excavation and removal of contaminated soil at Sites 1 and 2 of the Naval Weapons Industrial Reserve Plant (NWIRP) at Bethpage, New York. This work plan has been prepared to meet the requirements of the Remedial Action Contract, Delivery Order (DO) 0004.

2.0 SITE DESCRIPTION

NWIRP Bethpage is located in Nassau County on Long Island, New York, approximately 30 miles east of New York City. A Site Location Map is provided as Figure 2-1. This 108 acre site is bordered on the north, west, and south by the Grumman facilities, which cover approximately 605 acres, and on the east by a residential neighborhood. The NWIRP is currently listed by the New York State Department of Environmental Conservation (NYSDEC) as an "inactive hazardous waste site (#1-30-003B), as is the Northrop Grumman Corporation (#1-30-300A) and the Hooker/Ruco Site (#1-30-004), located less than 1/2 mile west of the NWIRP Bethpage.

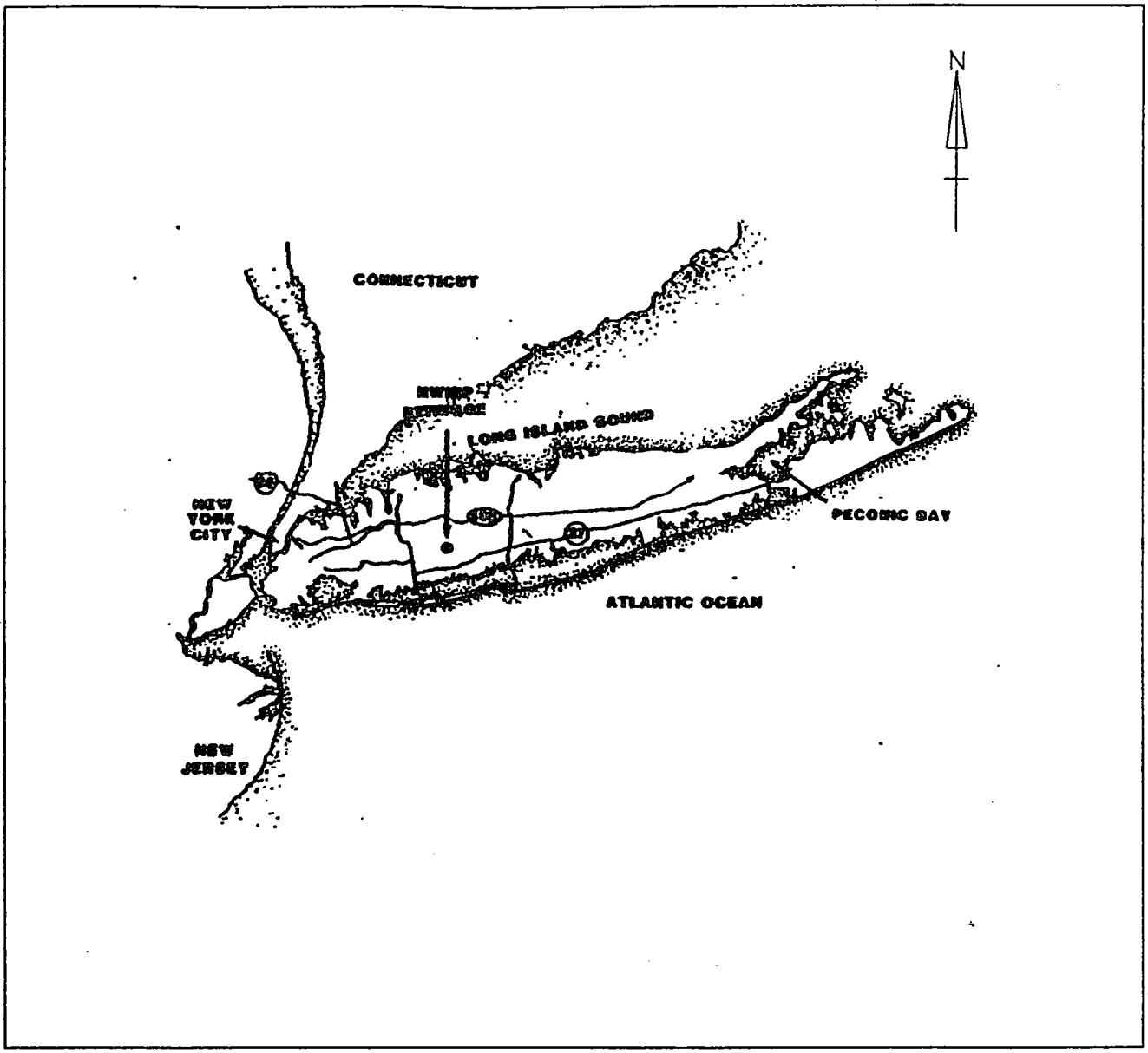
The NWIRP was established in 1933 and is still active. Since its inception, the primary mission for the facility has been the research prototyping, testing, design engineering, fabrication, and primary assembly of military aircraft.

The facilities as NWIRP include four plants (Nos. 3, 5, and 20 used for assembly and prototype testing, and No. 10, which contains a group of quality control laboratories), two warehouse complexes (north and south), a salvage storage area, water recharge basins, an industrial wastewater treatment plant, and several smaller support buildings.

DO 0004 involves the removal of contaminated soil at Sites 1 and 2. The sites are described below and presented in Figure 2-2.

SITE 1 - FORMER MARSHALING AREA: This area is located in the middle third of the NWIRP facility and east of Plant 3. It consists of two concrete drum storage pads (no longer active) and an abandoned cesspool leach field. In addition, this area has been used as a storage area for various types of equipment and heavy materials, including transformers.

SITE 2 - RECHARGE BASIN AREA: This area is located in the northeast corner of the Navy's property and north of Site 1. It contains three recharge basins which currently receive non-contact cooling water. Historically, these basins also received waters from Grumman operations. Also located on this site are the former sludge drying beds which no longer exist and have been filled in. Sludge from the Plant 02 industrial waste treatment facility was dewatered in these beds before being disposed of off-site.



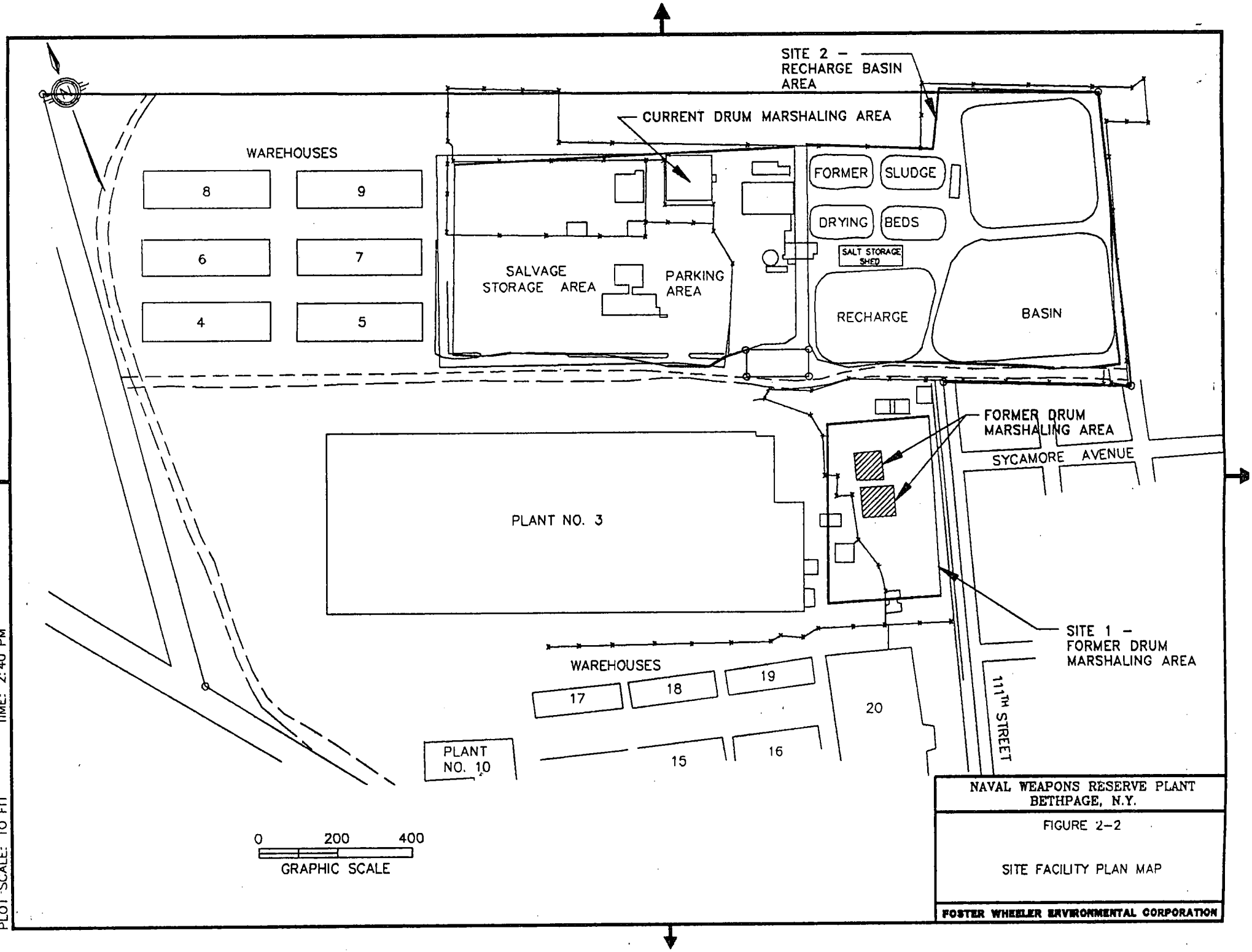
NAVAL WEAPONS RESERVE PLANT
BETHPAGE, N.Y.

FIGURE 2-1

SITE LOCATION MAP

FOSTER WHEELER ENVIRONMENTAL CORPORATION

CAD FILE NAME: DATE:
PLOT FILE: 1=1 TIME:



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3.0 SCOPE OF WORK

3.1 GENERAL SCOPE OF WORK

The general scope of work is remediation of PCB and arsenic-contaminated soil at the NWIRP Bethpage, Long Island facility. Foster Wheeler will provide supervision, labor, equipment and material required to perform the removal activities in accordance with applicable regulations. Foster Wheeler will also provide construction quality control and health and safety personnel. Work will be performed in accordance with the delivery order specifications, project plans and Health and Safety Plan.

There are two sites with PCB contamination and one site with arsenic contamination of surface and subsurface soil that require excavation and disposal at an off-site facility. Foster Wheeler will perform the following Scope of Work (SOW) at Sites 1 and 2:

Site 1:

- Excavation and transportation of approximately 1,100 cubic yards of soil contaminated with PCBs at concentrations ranging from 10 ppm to 500 ppm. This soil will be sent to a TSCA-permitted off-site facility for disposal.

- Excavation and transportation of approximately 300 cubic yards of soil contaminated soil with PCBs at concentrations greater than 500 ppm. This soil will be incinerated at an off-site EPA-permitted facility.

- Excavation and transportation of approximately 600 cubic yards of arsenic contaminated soil designated as RCRA Characteristic Waste. This soil will be sent to a RCRA-permitted off-site facility for disposal.

Site 2:

- Removal and transportation of approximately 2,600 cubic yards of soil contaminated with PCBs at concentrations of 10 ppm to 500 ppm. This soil will be sent to a RCRA-permitted off-site facility for disposal.

Execution of the SOW will require completion of the following tasks:

- Preparation of Planning Documents

- Pre-excavation Sampling

- Mobilization and Site Preparation

- Excavation and Disposal of Contaminated Soils

- Site Restoration and Demobilization
- Permitting
- Project Completion and Closeout
- Project Management

The SOW and general methodologies for accomplishing each task are presented in the following sections:

3.2 PREPARATION OF PLANNING DOCUMENTS

The delivery order specifically requires that Foster Wheeler prepare a Work Plan, Quality Control Plan, Health and Safety Plan, Sampling and Analysis Plan, Waste Disposal Plan and Environmental Protection Plan. Based upon guidance provided by the Navy, Foster Wheeler will submit the following documents:

Work Plan: The Work Plan provides the approach to accomplishing the scope of work. It includes a site description, the statement of work, the breakdown of the work into tasks and activities, the project schedule and project staffing plan.

Quality Control Plan: The Quality Control Plan details the procedures to be used and the personnel responsible for the maintenance of project quality, documentation procedures, a list of subcontracts and a list of definable features of work. This document will be used to maintain quality in accordance with the specifications throughout the duration of the remedial action. The Quality Control Plan is provided as Section 6 to this Work Plan.

Health and Safety Plan (HASP): The HASP was developed during the project scoping activities and submitted on June 26, 1995. Approval was received on September 12, 1995. Foster Wheeler will respond to these comments and submit only the changed pages as directed by the Navy.

Sampling and Analysis Plan (SAP): Foster Wheeler will prepare a pre-excavation Sampling and Analysis Plan in order to determine the limits of the contamination present in Sites 1 and 2. The plan will follow the relevant EPA guidance. The SAP will also include a Quality Assurance Project Plan (QAPP).

Preexcavation Sampling Report: Foster Wheeler will prepare a report summarizing the results of the preexcavation investigation. The report will provide data summary tables, data interpretation, and conclusions. The volumes of soil requiring remediation will be revised as necessary based upon the sampling results.

Environmental Protection Plan: Foster Wheeler will prepare an environmental protection plan. The plan will describe the engineering controls and procedures necessary to protect the environment during site remediation. The Environmental Protection Plan is provided as Section 7 to this Work Plan.

Waste Disposal Plan: Foster Wheeler will prepare a Waste Disposal Plan listing the permitted disposal facilities which will receive the wastes. The plan will describe the methods for handling and transporting the waste to the disposal facilities. The Waste Disposal Plan is provided as Section 8 to this Work Plan.

3.3 PREEXCAVATION SAMPLING

Foster Wheeler will conduct preexcavation sampling in accordance with the approved SAP. The objective of the sampling is to determine the extent and level of contamination present at Sites 1 and 2. Samples will be collected and sent to an off-site laboratory for analysis. The laboratory will be certified by the State of New York. All samples will be analyzed for TCLP arsenic and PCBs. Twenty percent will undergo analysis for organics (volatiles, semivolatiles, pesticides/PCBs) and inorganics to confirm that there are no other contaminants present. Sampling will be conducted on a grid pattern spaced at approximately 25' between sampling locations. The grid will be laid out to ensure that the entire suspected area of contamination is covered, as shown in Figure 3-1. Samples will be collected at depths of 0, 4, 8, and 12 feet and sent for quick turnaround.

Foster Wheeler will sample the exterior points of the grid first to ensure that a clean end point is established. If the analytical results show that contamination above action levels exists at an exterior point, the grid will be extended. Addtional soil borings will be advanced and samples to ensure that a clean end point is established.

The results of the preexcavation sampling will be used to adjust the original estimates of the quantities of contaminated soil requiring excavation, transport, and disposal. Analytical data will be plotted on the nodes of the grid. Each node will represent the center of a cell with a volume of 2500 cubic feet (25' x 25' x 4') Cells with PCB or arsenic contamination above the actions levels will be marked for excavation.

After all samples are received, Foster Wheeler will submit the Preexcavation Sampling Report detailed in Section 3.1. This report will contain plots depicting the lateral extent, depth, and contamination concentrations. These plots will be used to develop topographic excavation maps and depths of excavations required. Excavation areas for PCBs will indicate whether the soil will be loaded into vehicles/containers for disposal at a landfill or be shipped to an incinerator. After approval by the Navy, the excavation depths and method of disposal will be marked on the grid using cut stakes.

3.4 MOBILIZATION AND SITE PREPARATION

Mobilization and site preparation consists of mobilization of equipment, office trailers, and support utilities to the project site and preparation for the initiation of work. Pre-mobilization activities include coordination of labor resources, procurement of surveying, drilling, and waste transport subcontractors and disposal facilities and purchasing of materials and supplies related to the remediation effort.

The specific requirements for site preparation for the NWIRP Bethpage work are listed below:

- Mobilization of an office trailer and installation of all required utilities. Electrical service (110V) will be provided by the Navy. Foster Wheeler will coordinate potable water supplies and telephone service. The location of the site trailer is provided in Figure 3-2.

- Designation of the exclusion zone, contaminant reduction zone (including location of the decontamination pad), and support zone, as shown in Figure 3-2.

- Identification and marking of vehicle haul routes, including the location of available truck scales.

- Implementation of erosion and sediment control measures.

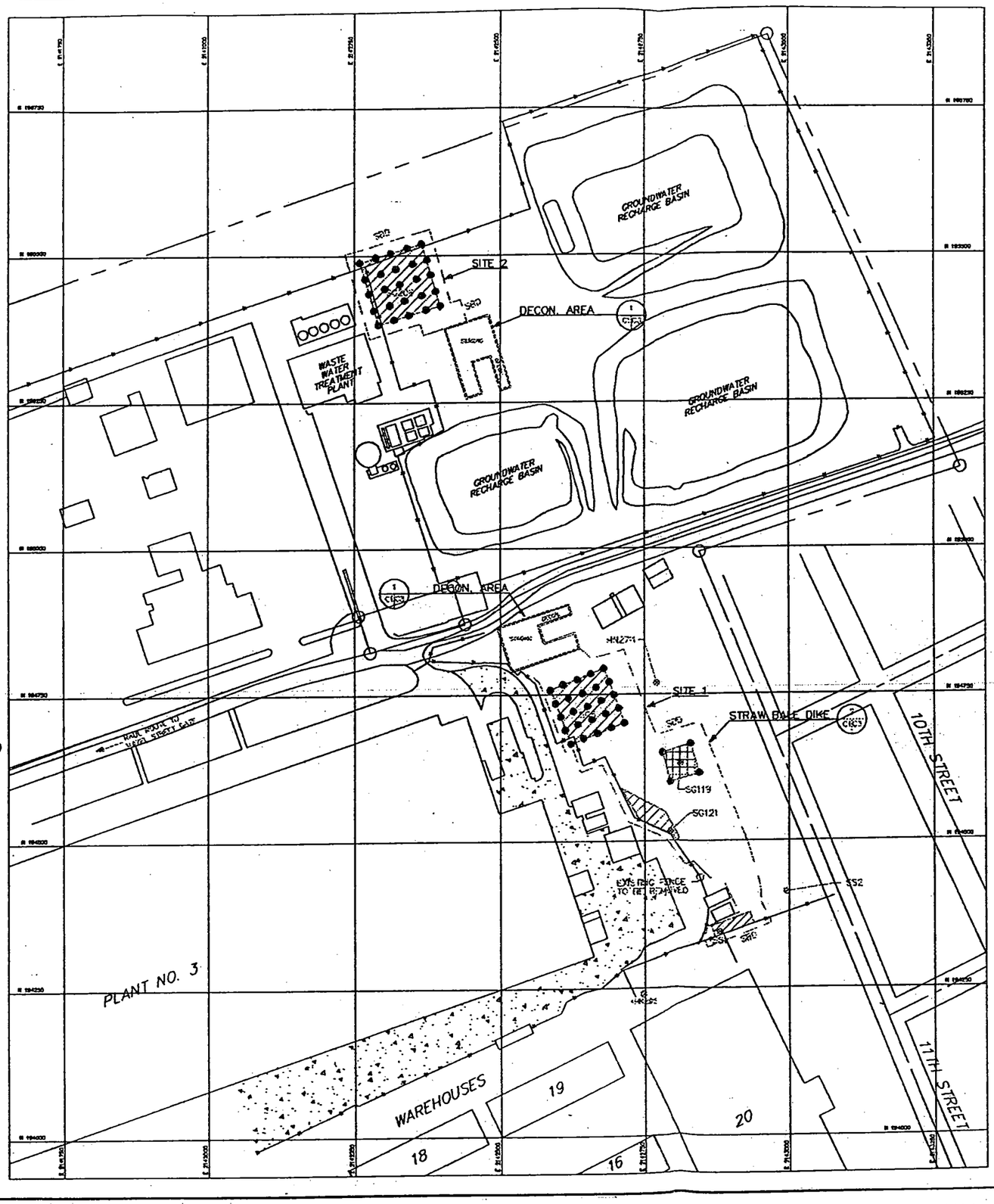
- Removal of approximately 300' of fencing, as shown in Figure 3-2.

- Placement of air monitoring stations to establish background baseline conditions.

- Installation of necessary security measures, including obtaining the necessary unrestricted access passes and truck passes from the local security contractor.

- Clearing and grubbing of surface debris and vegetation to the extent required.

The construction of a soil staging area, as indicated in the Remedial Design Report, will not be required. The nature and extent of contamination will be established by soil sampling over the grid described in Section 3.2 and the Sampling and Analysis Plan. Excavated soil will be placed directly into roll-off containers/vehicles for transport to the disposal facility.



LEGEND:

- PROPERTY LINE
- EXISTING FENCE
- PCB AREA
- ARSENIC AREA
- EXISITING CONCRETE
- DECON — DECONTAMINATION AREA
- SOIL BORING LOCATION (APPROX)
- SS – SURFACE SAMPLE
- SB – SOIL BORING
- SG – SOIL GAS SAMPLE
- SBD — STRAW BALE DIKE
- SG5 — SAMPLE POINT

NOTE:

DECONTAMINATION AREAS SHOWN ARE APPROXIMATE LOCATIONS. THE CONTRACTOR SHALL ADJUST LOCATIONS BASED UPON APPLICABLE TRAFFIC PATTERNS.

0 100 200 300

GRAPHIC SCALE

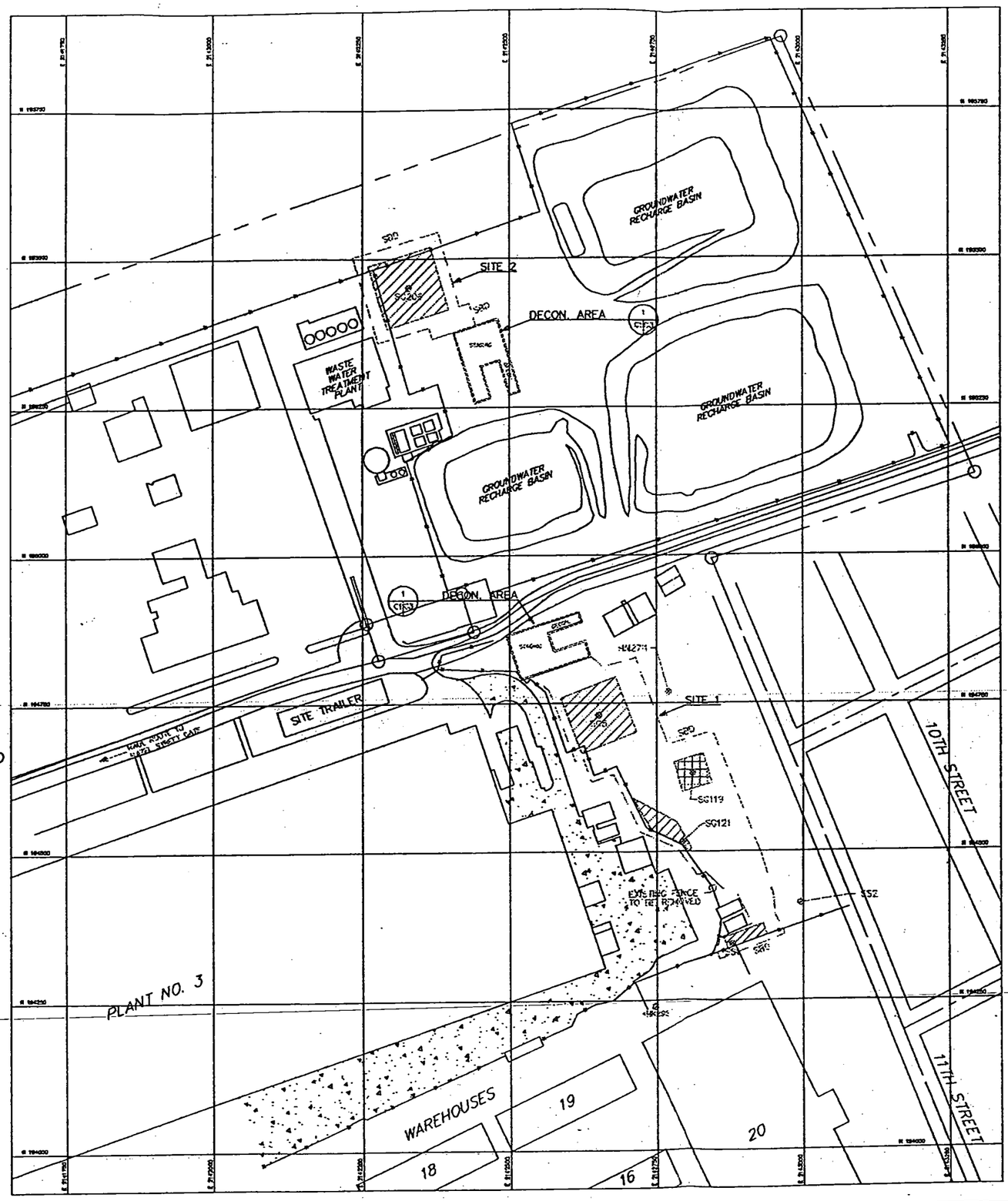
NAVAL WEAPONS RESERVE PLANT
BETHPAGE, N.Y.

FIGURE 3-1

SOIL BORINGS LOCATION MAP

FOSTER WHEELER ENVIRONMENTAL CORPORATION

CAD FILE NAME: FIG3-1.DWG
SCALE: 1=200
DATE: 9/28/95
TIME: 3:15 PM



LEGEND:

- PROPERTY LINE
- EXISTING FENCE
- PCB AREA (HOT ZONE)
- ARSENIC AREA (HOT ZONE)
- EXISITING CONCRETE
- DECON — DECONTAMINATION AREA
- SS – SURFACE SAMPLE
- SB – SOIL BORING
- SG – SOIL GAS SAMPLE
- SBD — STRAW BALE DIKE
- SG5 — SAMPLE POINT

NOTE:

DECONTAMINATION AREAS SHOWN ARE APPROXIMATE LOCATIONS. THE CONTRACTOR SHALL ADJUST LOCATIONS BASED UPON APPLICABLE TRAFFIC PATTERNS.

0 100 200 300

GRAPHIC SCALE

NAVAL WEAPONS RESERVE PLANT
BETHPAGE, N.Y.

FIGURE 3-2

SITE LAYOUT

FOSTER WHEELER ENVIRONMENTAL CORPORATION

CAD FILE NAME: FIG1-2.DWG
SCALE: 1=200
DATE: 9/28/95
TIME: 3:15 PM

3.5 EXCAVATION AND DISPOSAL OF CONTAMINATED SOILS

The statement of work requires the excavation of approximately 4,000 cubic yards (cy) of PCB-contaminated soils and 600 cy of arsenic-contaminated soils from the following locations:

Site 1 - Former Marshaling Area

Approximately 1,100 cy of PCB-contaminated soil (10 ppm to 500 ppm)
Approximately 300 cy of PCB-contaminated soil (> 500 ppm)
Approximately 600 cy of arsenic-contaminated soil

Site 2 - Recharge Basin Area

Approximately 2,600 cy of PCB-contaminated soil (10 ppm to 500 ppm)

Excavation will be accomplished using a Caterpillar 325 Backhoe and D5 Bulldozer (or equivalent equipment). Excavations in excess of four feet in depth will be cut back to achieve slope stability. Excavated soils will be loaded directly into dump trucks or roll-off containers for transport to the disposal facilities. Sites 1 and 2 will not be excavated concurrently. Arsenic-contaminated soils will be excavated separately from PCB-contaminated soils. Contaminated soils will be loaded directly into containers/vehicles for disposal and transported by licensed haulers to permitted and approved facilities. Haul routes will be directed along main commercial arteries away from residential neighborhoods.

Foster Wheeler will perform all excavations to minimize the migration of fugitive dust to the surrounding area. Water from a standby tanker will be used to suppress dust during periods when dry or conditions are encountered. Water use will be minimized to greatest extent possible.

Four air monitoring stations will be established at the perimeter of the work area to verify that dust emissions remain within acceptable levels. Air monitoring of vapor emissions will also be performed as per the site Health & Safety Plan.

At the completion of excavation, the Navy's oversight contractor (Halliburton NUS) will collect confirmatory samples to determine the effectiveness of the removal operation. Halliburton will require two weeks to receive and analyze chemical data. Once it has been determined that excavation activities have been completed, Foster Wheeler will survey the limits of the excavation.

3.6 SITE RESTORATION AND DEMOBILIZATION

After Foster Wheeler receives confirmation from the Navy that all contaminated soils have been removed, site restoration and demobilization will be initiated. Restoration requires

that all excavated areas will be backfilled with borrow material to match pre-excavation grades. Clean material will be obtained from local suppliers, who will provide analytical data and certification that the material is not contaminated. Fill material will delivered on site by the supplier and spread/compacted using a D-5 bulldozer and Bomag Compactor (or equivalent equipment). Backfill will be compacted to achieve the in-place density of the existing subgrade. Topsoil, seed, and mulch will not be installed over excavated areas.

After site restoration is completed, Foster Wheeler will demobilize from the site. Demobilization includes removal of all temporary facilities and removal of wastes generated during the remediation, including decontamination fluids, drill cuttings, and PPE.

3.7 PERMITS

Foster Wheeler will obtain the following permits identified in the Design Report:

- Form 8700-22 for off-site transport of PCB-contaminated soils.
- Form 8700-22 for off-site transport of arsenic-contaminated soils.
- Notification of Authorization of Disposal
- Certification of Disposal

All permits will be obtained before site mobilization and site preparation can begin.

3.8 PROJECT COMPLETION AND CLOSEOUT

Upon completion of all site activities, Foster Wheeler will prepare a Project Completion Report that includes the following sections:

- Introduction
- Summary of Action
- Summary of Record Documents
- Field Changes and Contract Modifications
- Final Documents
- QC Summary Report.

Project closeout activities include the final project audits and financial and technical closeout.

3.9 PROJECT MANAGEMENT

Project Management addresses the tasks and activities necessary to control project progress and report status to the Navy. Foster Wheeler will provide Project Management support from the Lyndhurst, NJ office. The meetings and reports included under Project Management are discussed in the following paragraphs:

3.9.1 Meetings

Foster Wheeler will conduct all construction meetings required by the contract, daily safety meetings, and weekly progress meetings as necessary.

Construction Meeting: After mobilization and the start of construction, the Project Superintendent will conduct a meeting every two weeks. The Navy will be notified 48 hours in advance of each meeting. Foster Wheeler will prepare and distribute the minutes of these meetings within two working days. The following agenda will be followed:

- Review of minutes from previous meeting
- Review schedule and status of work
- Review submittal status
- Preview two week look ahead
- Resolve problems and issues of concern

Daily Safety Meeting: Prior to starting work, the SHSO will conduct a daily safety meeting. All of the day's planned activities will be reviewed with particular attention focused on PPE and risk. All site personnel are required to attend the meeting. Additional information on the Daily Safety Meeting is provided in the HASP.

3.9.2 Reports

Foster Wheeler will provide an Environmental Conditions Report, Daily Production and Quality Control Reports, and Monthly Status Reports to the Navy. These are discussed in the following paragraphs:

Environmental Conditions Report: Prior to starting work, Foster Wheeler will perform a photographic survey of the individual work sites with the Navy's designated representative. This survey will provide information pertaining to the existing environmental conditions in and around the work areas.

Daily Production and Quality Control Report: The Project Superintendent will prepare a combined Daily Production and Quality Control Report for each day that work

is performed. The original and one copy will be forwarded to the Navy by 10:00 AM the next working day. Information required under Section 6.15 of the contract specifications will be included in this document. A copy of the report format is provided in Figure 3-4.

Monthly Status Report: The Project Manager will submit a Monthly Project Report for each month where significant activity occurs. The report will be prepared and submitted in conjunction with the monthly program report and will include the following items:

- Work Accomplished During the Previous Month
- Work Planned for the Next Month
- Problems and Solutions
- Progress Schedule
- Commitment Status and Forecast Report
- Cost Report
- Noncompliance Report
- Production and QC Report
- Waste Disposal Report

4.0 PROJECT SCHEDULE

The Project Schedule is presented in Figure 4-1. Preexcavation sampling will occur after Navy approval of the Work Plan and Sampling and Analysis Plan. Site mobilization will not occur until all disposal approvals are received.

5.0 PROJECT STAFFING PLAN

The Project Staffing Plan is presented in Figure 5-1. The roles and responsibilities of the key project personnel are described in the paragraphs. Resumes for the Key Personnel are provided in Appendix A.

Project Manager: The Project Manager is responsible for overall execution of the delivery order. He reports directly to the NORDIV RAC Program Manager and is the Navy's principal point of contact. The Project Manager is responsible for preparation of all project plans, making coordination with all host facility personnel, ensuring compliance with project technical specifications, and enforcing budget and schedule compliance.

Field Operations Lead: The Field Operations Lead is responsible for the execution of the pre-excavation sampling. She reports directly to the Project Manager. She ensures compliance with the sampling protocols and chain-of-custody requirements. The Field Operations Lead will maintain a field logbook documenting all sampling activities.

Project Superintendent: The Project Superintendent will be Foster Wheeler's lead on-site during the excavation and disposal activities. The Superintendent will interface with the Navy's Resident Employee In Charge of Construction (REICC). He will coordinate all daily site operations and ensure implementation of the Site-Specific HASP. The Project Superintendent will complete on-site QC responsibilities and will communicate with the Quality Control Manager.

Quality Control Manager: The Quality Control Manager (QCM) is responsible for ensuring that all work is performed with the contract and delivery order specifications. The QCM reviews and approves all submittals before delivery to the Navy and maintains the submittal register (provided as Appendix B).

Site Health and Safety Officer (SHSO): The SHSO will assist the Project Superintendent in the enforcement of the HASP. air monitoring, training, and coordination of medical surveillance for all site personnel. The SHSO has a direct reporting line to the Superintendent and a communication line to the program Health and Safety Manager. The SHSO has "stop work" authority if unsafe conditions arise.

6.0 QUALITY CONTROL/QUALITY ASSURANCE PLAN

6.1 PURPOSE

This Quality Control/Quality Assurance (QC/QA) section describes the organization, inspections, tests, procedures and documentation necessary to produce a completed project which complies with governing regulations and the work plan applicable to the NWIRP Bethpage remediation project in Long Island, New York.

6.2 ORGANIZATION AND RESPONSIBILITIES

On-site QA/QC duties will be undertaken by the Project Superintendent and Site Health & Safety Officer. They will utilize physical inspections, direct air monitoring and confirmatory laboratory testing to verify that work is being performed in accordance with the project plans. All subcontractors will confirm to, and participate in the program described herein as part of a unified team.

Foster Wheeler Environmental will direct and maintain responsibility for the overall QA/QC program and will manage subcontractors in a manner to maintain project quality assurance and control requirements. It is anticipated that subcontractors will be utilized for excavation, trucking and disposal and laboratory analysis.

EARLY START	EARLY FINISH	1995 JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	1996 JANUARY	FEBRUARY	MARCH
		CONTRACT AWARD								
03JUL95A	03JUL95A	CONTRACT AWARD								
		PRECONSTRUCTION SUBMITTALS								
05SEP95	02OCT95			PRECONSTRUCTION SUBMITTALS						
19SEP95	31OCT95			NAVY REVIEW						
01NOV95	31OCT95				NOTICE TO PROCEED					
01NOV95	07NOV95				PRE-MOBILIZATION SAMPLING					
08NOV95	14NOV95				OFF SITE ANALYTICAL (72 Hr TAT)					
15NOV95	29NOV95				PREPARE SAMPLING REPORT					
30NOV95	04DEC95				PREPARE DISPOSAL APPROVALS					
05DEC95	26DEC95				DISPOSAL FACILITY/STATE REVIEW					
27DEC95	26DEC95				RECEIVE DISPOSAL APPROVALS					
		MOBILIZATION								
27DEC95	28DEC95				MOBILIZATION					
		SITE WORK								
29DEC95	05JAN96				SITE 1 EXCAVATE/LOAD					
08JAN96	15JAN96				SITE 2 EXCAVATE/LOAD					

DESC

△ MILESTONE

CRITICAL

PROGRESS

PLANNED

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PROGRAM MANAGER: A. HOLCOMB

DOM: H. LAZARUS

Figure (4-1)

RUN DATE	18SEP95
START DATE	03JUL95
DATA DATE	01SEP95
FINISH DATE	08MAR96

NWIRP BETHPAGE, LONG ISLAND

D. D. 0004

BASELINE VS CURRENT

SURETRAK

NWIRP BETHPAGE, LONG ISLAND

EARLY START	EARLY FINISH	1995 JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	1996 JANUARY	FEBRUARY	MARCH
08JAN96	12JAN96							SITE 1 POST EXAVCATION SAMPLING		
08JAN96	19JAN96							TRANSPORT		
15JAN96	16JAN96							DECON/WIPE SAMPLES		
16JAN96	23JAN96							SITE 2 POST EXCAVATION SAMPLING		
17JAN96	24JAN96							SITE 1 BACKFILL/COMPACT		
24JAN96	25JAN96							DECON/WIPE SAMPLES (2)		
26JAN96	02FEB96							SITE 2 BACKFILL/COMPACT		
		DEMOBILIZATION								
05FEB96	06FEB96							DEMOBILIZE		
07FEB96	08MAR96							FINAL REPORTS		
		MISC & MANAGEMENT								
05SEP95	08MAR96	MANAGEMENT								
08MAR96	07MAR96									PROJECT CO

DESC

△ MILESTONE

CRITICAL

PROGRESS

PLANNED

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PROGRAM MANAGER: A. HOLCOMB

DOM: H. LAZARUS

Figure (4-1)

RUN DATE	18SEP95
START DATE	03JUL95
DATA DATE	01SEP95
FINISH DATE	08MAR96

SURETRAK

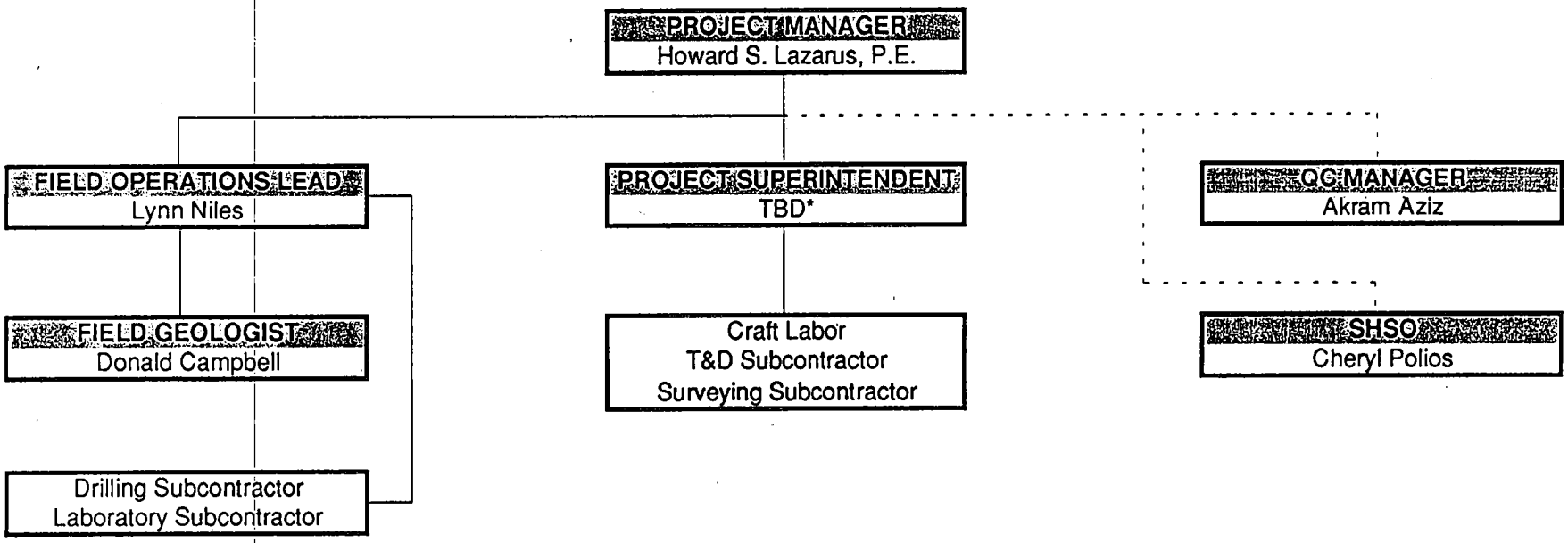
NWIRP BETHPAGE, LONG ISLAND

D. D. 0004

BASELINE VS CURRENT

NWIRP BETHPAGE, LONG ISLAND

FIGURE 5-1 - PROJECT ORGANIZATION



NOTES: Dashed lines indicate project reporting. The QC Manager and SHSO have independent reporting lines to the Corporate QAO and H&S Manager, respectively.

*The Project Superintendent will be selected from the individuals identified in the contract proposal.

6.3 PROBLEM OR WORK DEFICIENCY MEETINGS

If a major problem or deficiency occur or is likely to occur, a special meting to address related issues will be held. The meeting will be attended by the Project Superintendent, SHSO, Subcontractor's Foreman, a Navy representative and others as required. The purpose of the meeting would be to define and resolve potential problems or work deficiencies in the following manner:

- Define and discuss the problem or deficiency
- Review alternative solutions, including their effects on schedule and budget
- Implement a plan to resolve the problem or deficiency.

The meeting will be documented and minutes transmitted to all participants.

The Quality Control Manager is responsible for maintaining the submittal register and reviewing and certifying that submittals are in compliance with the contract requirements. All submittals will be accompanied by a transmittal form which will identify the submittal and provide a unique tracking number. A copy of the transmittal form is provided as Figure 6-1.

6.4 TESTS AND INSPECTIONS

6.4.1 Production Testing

Compaction testing will be performed to ensure that density equivalent to the existing in-place is achieved. These tests will be conducted under the direction of the Project Superintendent.

6.4.2 Preparatory Inspections

A preparatory inspection will be performed at each major definable stage of the remediation project. They will typically include the following:

- Review of the work plans and Standard Operating Procedure
- Examination of the work area in question to assure that all preliminary work necessary for the next phase of remediation to occur, has been completed
- Verification of all field dimensions
- Physical examination of material (i.e., fill and topsoil) and equipment to verify their presence and sufficient quantity, as well as conformance to submittals and workplans

TRANSMITTAL OF SHOP DRAWINGS, EQUIPMENT DATA, MATERIAL SAMPLES, OR MANUFACTURER'S CERTIFICATES OF COMPLIANCE

(Read instructions on the reverse side prior to initiating this form)

DATE

TRANSMITTAL NO.

SECTION I - REQUEST FOR APPROVAL OF THE FOLLOWING ITEMS *(This section will be initiated by the contractor)*

TO: Commanding Officer
Northern Division
Naval Facilities, Engineering Command
10 Industrial Highway
Lester, PA 19113

FROM: Foster Wheeler Environmental
2300 Lincoln Highway East
One Oxford Valley, Ste 200
Langhorne, PA 19047-1829

CONTRACT NO. N62472-94-D-0398

D.O. #

CHECK ONE:
- ☐ THIS IS A NEW TRANSMITTAL
- ☐ THIS IS A RESUBMITTAL OF TRANSMITTAL _____

ITEM NO. a.	DESCRIPTION OF ITEM SUBMITTED *(Type, size, model number/etc.)* b.	MFG. OR CONTR. CAT., CURVE DRAWING OR BROCHURE NO. *(See instruction no. 8)* c.	NO. OF COPIES d.	CONTRACT REFERENCE DOCUMENT		FOR CONTRACTOR USE CODE g.	VARIATION *(See Instruction No. 6)* h.	FOR C E USE CODE i.
				SPEC. PARA. NO. e.	DRAWING SHEET NO. f.			
	Specification Section No.							

REMARKS

Figure 6-1 - Transmittal Form

I certify that the above submitted items have been reviewed in detail and are correct and in strict conformance with the contract drawings and specifications except as other wise stated.

NAME AND SIGNATURE OF CONTRACTOR

SECTION II - APPROVAL ACTION

ENCLOSURES RETURNED *(List by Item No.)*	NAME, TITLE AND SIGNATURE OF APPROVING AUTHORITY	DATE

INSTRUCTIONS

1. Section I will be initiated by the Contractor in the required number of copies.

2. Each transmittal shall be numbered consecutively in the space provided for "Transmittal No.". This number, in addition to the contract number, will form a serial number for identifying each submittal. For new submittals or resubmittals mark the appropriate box; on resubmittals, insert transmittal number of last submission as well as the new submittal number.

3. The "Item No." will be the same "Item No." as indicated on ENG FORM 4288 for each entry on this form.

4. Submittals requiring expeditious handling will be submitted on a separate form.

5. Separate transmittal form will be used for submittals under separate sections of the specifications.

6. A check shall be placed in the "Variation" column when a submittal is not in accordance with the plans and specifications--also, a written statement to that effect shall be included in the space provided for "Remarks".

7. Form is self-transmittal, letter of transmittal is not required.

8. When a sample of material or Manufacturer's Certificate of Compliance is transmitted, indicate "Sample" or "Certificate" in column c, Section I.

9. U.S. Army Corps of Engineers approving authority will assign action codes as indicated below in space provided in Section I, column i to each item submitted. In addition they will ensure enclosures are indicated and attached to the form prior to return to the contractor. The Contractor will assign action codes as indicated below in Section I, column g, to each item submitted.

THE FOLLOWING ACTION CODES ARE GIVEN TO ITEMS SUBMITTED

A	--	Approved as submitted	E	--	Disapproved (See attached)
B	--	Approved, except as noted on drawings.	F	--	Receipt acknowledged
C	--	Approved, except as noted on drawings. Refer to attached sheet resubmission required.	FX	--	Receipt acknowledged, does not comply as noted with contract requirements
D	--	Will be returned by separate correspondence.	G	--	Other *(Specify)*

10. Approval of items does not relieve the contractor from complying with all the requirements of the contract plans and specifications.

☆ U.S.G.P.O.: 1989- 718-222/10290

FIGURE 6-1 - TRANSMITTAL FORM (CONT)

- Verification of proper manifest or bill of lading and acceptance of material disposal or incineration facility

The Project Manager will be advised of inspection results. Deficient work activities may require a more rigorous schedule of reinspection, continuous inspection or stop work order until problems or deficiencies have been resolved. Deficiencies and the results of follow-up inspections will be documented on the appropriate inspection sheet.

6.4.3 Termination Survey on Soil Excavation

Confirmatory sampling will be conducted by the Navy and results reviewed prior to backfilling operations. The final horizontal and vertical excavation limits will be surveyed and will serve as the remediation "as-built" drawings.

6.4.4 Completion Inspections

The Project Superintendent and SHSO will jointly conduct a completion inspection at any increment of work established in the work plans and Standard Operating procedures, as well as at the completion of all work. Any punchlist items will be reviewed to assure that all items have been completed and corrected. The Navy may elect to accompany the inspection team or perform supplemental QA inspections. Any nonconformance noted will be processed by the Project Superintendent and resolved in a timely manner and identified in a final punchlist, as needed. Final inspection items may include compaction testing, material conformance and installation, final grades achieved, receipt of disposal manifests and weight slips.

6.5 CHANGES AND NONCONFORMANCES

6.5.1 Changes

If circumstances develop during the construction process that make it necessary or advisable to revise the work plan in order to accomplish project goals, a Field Change Request (FCR) will be generated by project field staff. Events such as a change in site conditions, use of alternative methods or materials and improvements to permit effective excavation may result in a FCR. A FCR will be processed by the Project Superintendent in accordance with established Foster Wheeler Environmental engineering procedures. FCRs also require review and approval by the Navy. Once approved, the FCR supersedes the pertinent sections of the work plan.

6.5.2 Nonconformances and Resolution

Any activities that occur which may not or do not comply with the project work plan will be addressed as follows:

- The project staff involved is told of potential nonconformance. If necessary, a written Performance Evaluation Report (PER) is given to responsible staff. The PER identifies the possible nonconformance, to be addressed by the Project Superintendent and Project Manager.

- If the PER is determined to be an actual nonconformance, a Nonconformance Report (NCR) will be issued. The QA Officer will be informed and the Project Superintendent and Project Manager will immediately address the NCR. The NCR will be resolved on an expedited schedule to avoid jeopardizing worker and public health & safety.

- If overall project safety or integrity is at risk, the SHSO and higher levels of the Foster Wheeler Environmental chain-of-command, including the QA Officer and Project Sponsor will be brought in to resolve the NCR.

A written response to the NCR must be made within seven days unless otherwise agreed to by all parties. The mechanism for response will be an FCR.

If the proposed corrective action is deemed insufficient by the QA Officer, corrective action cannot be obtained, or results of prior work are indeterminate and significant project environmental or health & safety consequences are anticipated, work may need to be halted by issuing a Stop Work Order. This step should only involve the affected portions of the site work and is invoked only to protect worker safety and overall technical integrity of the project. A Stop Work Order should be issued only after reasonable efforts to resolve the NCR have occurred through the Foster Wheeler Environmental chain-of-command.

6.6 DOCUMENTATION

Documentation of operations recordkeeping, photographic evidence of work performed and as-built drawings will be provided to the Navy in the project Final Report.

6.6.1 Operations Recordkeeping

All inspection and testing activities will be documented with appropriate forms. These will address each work activity inspected by the Project Superintendent according to established acceptance criteria. The Project Superintendent will maintain current records of quality control operations and activities and test performed, including the work of subcontractors and suppliers. These records will include factual evidence of the required quality control activities performed, including:

- Work performed daily, giving location, description and staff

- Results of tests and QC activities with references to specifications/plan requirements. The control phases involved for each definable work feature (i.e., preparatory, completion) will be identified. Any deficiencies and corrective actions will be noted

- Materials received, with statement of its acceptability and storage

- Submittals reviewed with contract reference, including staff and action taken

- Results, instructions and/or corrective actions taken as a result of specific job safety evaluations

- Any instructions given or received, conflicts in plans or specifications and status of resolving these issues.

- Subcontractors' verification statements and certifications

- Completed Field Change Requests

- Project PERs and NCRs

- QC Daily Log

- Photographic Log

Operation records will include a description of trades working on the project, the number of personnel working, weather conditions and any delays. These records will also include both conforming and deficient features of the work.

6.6.2 Photographic Documentation

Still 35 mm color photographs will be taken as needed to record preexcavation, post-excavation and work progress conditions. Pre-excavation photos will capture the entire site and any off-site features that may be susceptible to damage from project activities (i.e., egress roads). Progress photos will be taken at the same locations, if possible to record the same perspective throughout the project. Progress photos will be taken to document milestone events, unique operations or non-conforming situations.

The photo log will include the date the photo was taken, initials of photographer and a description of the view shown in the photo.

6.6.3 As-Built Drawings

During the course of the project, the Project Superintendent will complete as-built mark-ups on site layout drawings. As-built drawings will depict the limits and depth of the

excavated areas. Confirmatory sample locations from the termination survey to be conducted by the Navy will also be indicated on the as-built drawings.

7.0 WASTE REMOVAL PLAN

7.1 PURPOSE

This section addresses how the various materials generated from site removal action activities will be handled. These materials include wastewater, personal protective equipment, non-hazardous and hazardous waste.

7.2 WASTE HANDLING

7.2.1 Wastewater

Wastewater from personal protective and heavy equipment decontamination will be collected, stored and tested for constituents of concern by the subcontractor. The wastewater will be disposed of appropriately, based on the analytical results.

7.2.2 Non-Hazardous Materials

Non-hazardous materials and debris will be directly loaded into containers for disposal at a landfill. Soils, concrete, grubbings, PPE and other miscellaneous waste will be placed in appropriate containers. Container contents will be recorded and records kept at the field office.

7.2.3 Hazardous Materials

Contaminated soils will be excavated and loaded into trucks for eventual disposal or incineration. Soils with PCB concentrations between 10 and 500 mg/kg or with arsenic leachate concentrations exceeding 5.0 mg/l will be excavated and disposed of in a TSCA/RCRA disposal facility. Soils with PCB concentrations greater than 500 mg/kg will be excavated and transported to an off-site TSCA/RCRA-permitted incinerator.

PPE and other miscellaneous debris will be placed in appropriate containers for disposal. Documentation of container contents will be maintained at the field office. All disposal and incinerator facilities must be approved by USEPA and Foster Wheeler Environmental prior to award of the subcontract. Waste profiles and other documentation will be forwarded to the Navy for signature.

Foster Wheeler Environmental will provide completed manifest and transport documentation to the Navy for review and signature. If approved by the Navy, Foster Wheeler may sign the manifests as an agent of the Navy using the Navy's generator number. Copies of certified weight tickets from the disposal facility and all disposal

certification documents will be forwarded to the Foster Wheeler Environmental Project Superintendent within 72 hours of disposal.

Although hazardous waste material will be loaded for off-site transportation immediately after excavation and no staging of hazardous material is anticipated, if staging is necessary it must be in conformance with the following requirements:

- All staged hazardous waste must be removed from the site for treatment and disposal within ninety (90) days of first being accumulated.

- Up to 8,800 gallons of waste can be stored on site for a period not exceeding ninety (90) days if the waste is managed in accordance with the requirements of 6 NYCRR 373-1.1, which include the following:

  - the waste is placed in containers

  - the date on which the accumulation period begins is clearly marked on each container

  - a label or sign stating "Hazardous Waste" must identify all areas and containers where hazardous waste is stored

  - appropriate hazardous waste training is provided to site personnel, contingency plans are available to handle any fire, spill, or emergency, and appropriate emergency response equipment (i.e. spill cleanup material, fire protection equipment, communication devices, alarms to notify workers of an emergency) are present

  - containers used to store hazardous waste are in good condition

  - containers must be made of material compatible with the waste being stored

  - containers must be kept closed except to add or remove waste and must be managed to prevent leaking

  - containers must be inspected every week for leaks and deterioration and inspections documented in a weekly inspection log

8.0 ENVIRONMENTAL PROTECTION AND REGULATORY COMPLIANCE PLAN

8.1 PURPOSE

This section discusses the measures to be taken to protect the environment and ensure compliance with all required laws and regulation during the execution of the delivery order scope of work.

8.2 REGULATORY COMPLIANCE

8.2.1 Permits

Foster Wheeler will obtain the following permits identified in the Design Report:

- Form 8700-22 for off-site transport of PCB-contaminated soils.
- Form 8700-22 for off-site transport of arsenic-contaminated soils.
- Notification of Authorization of Disposal
- Certification of Disposal

All permits will be obtained before site mobilization and site preparation can begin.

8.2.2 USEPA/State Waste Identification Numbers

USEPA/New York State Waste Identification Numbers must be obtained prior to any activities if materials being removed contain EPA or New York State hazardous wastes, or wastes contaminated with regulated levels of PCBs. Therefore, these numbers will be obtained from the Navy and verified prior to the commencement of any activity. Transporter and disposal facility identification numbers will also be verified.

8.2.3 Waste Management

Hazardous Wastes

If not previously accomplished by the Navy, a Notification of Hazardous Waste Activity, as required by 40 CFR 261.41, will be transmitted to the USEPA. Hazardous wastes will be managed in accordance with 6 NYCRR Part 370-373.

Hazardous and toxic waste must be removed from the site within 90 days of it's being accumulated, unless it is stored in an area designated as being contaminated. Each container must be clearly marked with the date that accumulation of waste began.

Waste containers must be in good condition and not leak. The waste accumulation area must be inspected at least weekly to check for leaks or deterioration caused by corrosion or other factors. Inspections must be logged in a field notebook and the weekly inspection checklist completed. Copies of these will be provided to the Navy.

The containers should remain closed at all times, except when adding or removing waste. Containers holding hazardous waste must be located at least 15 meters (50 feet) away from the property line. Each container that is 110 gallons or less must be marked conspicuously with a completed label stating:

"HAZARDOUS WASTE -- Federal law prohibits improper disposal. If found, contact the nearest police or public safety authority or the U.S. Environmental Protection Agency."

Solid Wastes

Waste materials that are determined to be nonhazardous will be managed in accordance with New York State solide waste regulations including New York Rules and Regulations, Title 6, Parts 360 (Solid waste Management Facilities) and 364 (Waste Transport Permit Regulations).

Toxic Wastes

PCB Contaminated Materials: If not already accomplished by the Navy, a Notification of PCB Waste Activity Form will be transmitted to USEPA. Soils from Sites 1 and 2 which contain PCBs in concentrations greater than 10 mg/kg will be managed subject to the provisions of 40 CFR 761, which establishes requirements for storage, marking, manifesting, recordkeeping, and disposal of PCBs and PCB items. Pursuant to 40 CFR 761.65(c), these requirements include:

- Roll-offs containing PCB contaminated wastes will be securely covered to prevent contact with precipitation and must be protected from leaking.

- Containers will be dated as to when contaminated material is first stored.

- Areas where roll-offs/trucks are stored/parked prior ro transport off-site (if applicable) will be marked with 6" lettering in a white or yellow background as referred to in 40 CFR 761.45, Figure 1.

- Roll-offs/trucks will be checked for leaks at least one every 30 days (if applicable).

- The thirty day storage limit will not applyto this site since any storage of roll-offs/trucks will be within the area of contamination.

Removal operations for soil and debris will be conducted under the worker protection provisions of regulations promulgated by the Occupational Safety and Health Administration (OSHA) in 29 CFR Parts 1910 and 1926.

8.3 ENVIRONMENTAL PROTECTION

8.3.1 Air Pollution Control

Fugitive dust emissions may result from project operations. Unpaved areas and excavation activities are the primary sources of fugitive dust that are of concern. Foster Wheeler will take preventive measures to minimize the potential for fugitive dust to become a problem. Engineering controls, including dust suppression (watering), limiting the excavation face, speed reduction, the erection of windbreaks, and covering of exposed excavation areas will be employed as necessary. Any temporary stockpiles of soil will be kept within the excavated area, below ground surface, shielding it form the wind. Dump trucks/containers will be covered when not being actively filled.

Foster Wheeler will also perform real-time dust monitoring during excavation operations and establish upwind and downwind monitoring stations at the perimeter of the work area. When emissions at the site perimeter exceed 5.0 mg/m^3, dust suppression will be accomplished by applying water to the excavation.

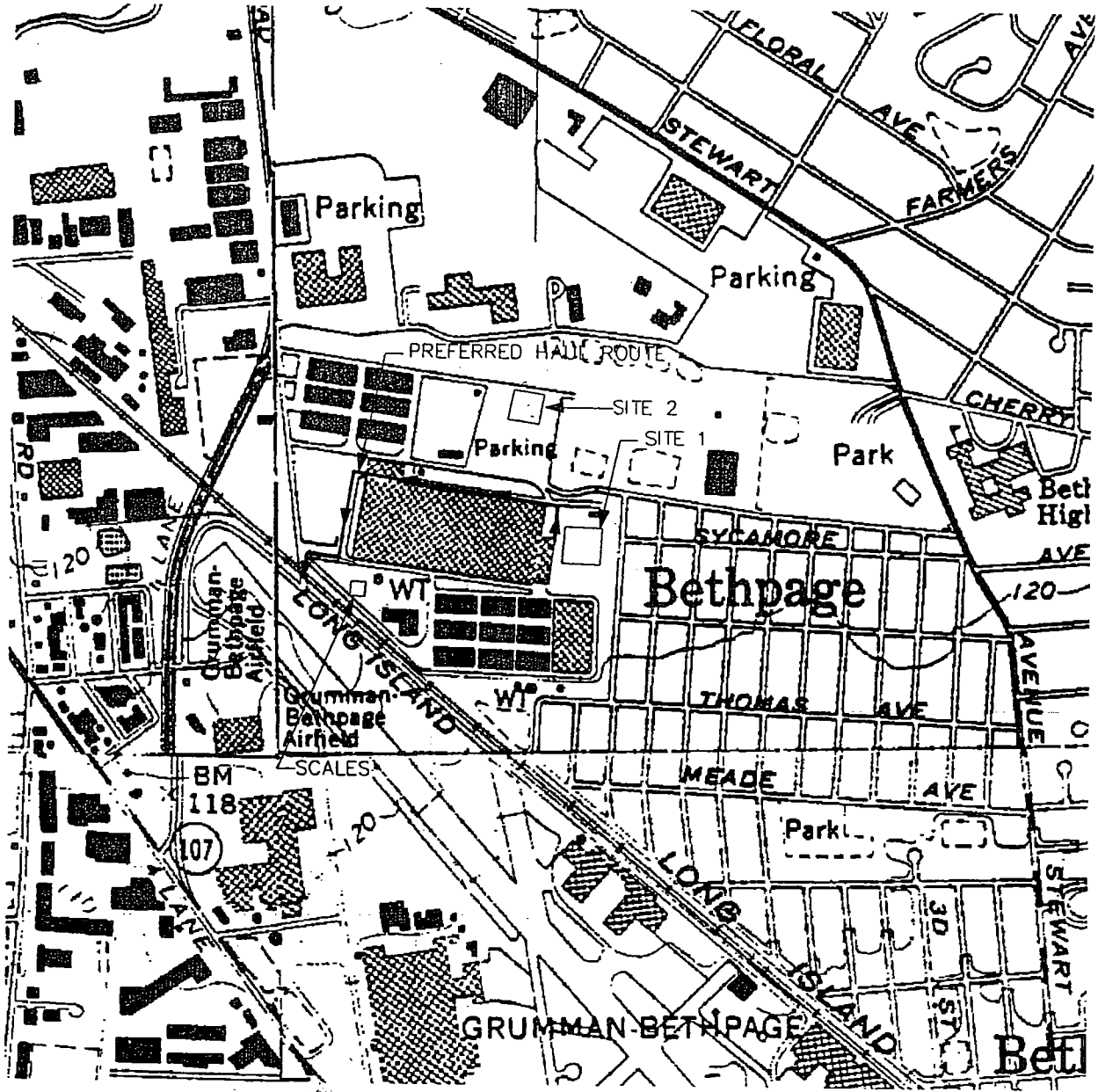
Haul routes will be directed away from the adjacent population and residential areas. Haul routes are depicted in Figure 8-1.

8.3.2 Wastewater and Stormwater Management

All wastewater from equipment decontamination will be collected and disposed of with other contaminated materials being removed from the site. Stormwater will be managed using appropriate engineering controls (i.e., covers, berms, etc.) and any existing on-site systems as necessary to eliminate or reduce the production of stormwater that would need to be disposed of with contaminated materials.

8.3.3 Site Remediation

Hazardous and toxic wastes to be removed from the site must be placed into appropriate U.S. Department of Transportation (DOT) approved containers compatible with the waste. The containers must be clearly marked "HAZARDOUS WASTE" and identify the waste's primary risk(s) (i.e., toxic, flammable) to inform employees emergency response personnel and the public. Commercial hazardous waste labels may be attached to the container, with all information completed prior to transportation off-site. The generator's name and address and manifest document number must also be on the containers.



NAVAL WEAPONS RESERVE PLANT
BETHPAGE, N.Y.

FIGURE 8-1

HALL ROUTES

FOSTER WHEELER ENVIRONMENTAL CORPORATION

8.3.4 Transport

Only transporters who have demonstrated competence and the required permits and license for transporting waste will be used. Foster Wheeler Environmental policies and procedures for subcontracting these services will be followed. Transporter EPA/State I.D. Numbers will be kept in the project and compliance files. Trucks will be covered and lined to prevent fugitive releases of waste during transport. All trucks leaving the site will be inspected by Foster Wheeler Environmental personnel prior to departure to ensure that the hauler displays the appropriate placards.

8.3.4.1 DOT Requirements

Hazardous materials must be properly classified, described, packaged, marked, and labelesd and be in condition for shipment as required by 49 CFR 171.

Waste that does not exhibit one of the nine DOT hazard class characteristics (i.e. explosive, falmmable, poison, combustable, etc.) is not regulated under DOT rules for the transportation of hazardous material. If waste is suspected to be a DOT hazardous material, then it must be shipped under the suspected hazard class. If a particular hazard class is unable to be determined, then the substance may be shipped under either of the following:

Shipping Name	Hazard Class	ID Number	Packing Group	Label
Environmentally hazardous substances, liquid, n.o.s.	9	UN3082	III	CLASS 9
Environmentally hazardous subtances, solid, n.o.s.	9	UN3077	III	CLASS 9

When using one of these "n.o.s." (not otherwise specified) shipping names, at least two technical names must follow (e.g. Environmentally hazardous substances, liquid, n.o.s. [Benzene and Acetone]").

The shipping name, identification number, packing group, instructions, cautions, weights, EPA waste code numbers, and consignee/consignor designations must be marked on the packages for shipment. Labeling provides information regarding the DOT hazard class. Oce the waste is charachterized, reference should be made to the Hazardous Materials Table in 49 CFR 172.101 to determine the appropriate label. The package (or drum) must be marked and labeled as specified in 49 CFR 172.301.

The person offering hazardous material for shipment must offer placards (49 CFR 172.506). Any quantity of material listed in Table 1 of the regulations must be placarded. However, if there is less than 1,000 pounds of a Table 2 material, no placard is required.

No Class 9 placard is required for domestic shipments. If a placard is required, the label referenced above must be affixed on each side and each end of the vehicle(s).

Hazardous material shipping papers must have the following description of the hazardous material, in the following order:

- Proper shipping name
- Hazard class or division
- Identification number
- Packaging group
- Total quantity (must appear either before or after the above information)
- Technical and chemical group names may be entered in parenthesies between the proper shipping name and hazard class of following the basic description (e.g. "Flammable liquids, n.o.s. [contains xylene and benzene], 3 UN1993, PG II").

Other required information includes:

- EPA identification (manifests)
- Emergency Response Guidebook numbers
- 24-hour emergency response number, supplied by the generator and answered by a knowledgeable person
- Signatures

Shipper's certification

8.3.4.2 Transport of PCB Contaminated Materials

TSCA does not require a marking label on PCB-contaminated wastes. However, DOT markings are required. The person offering hazardous material for shipment must offer placards according to 49 CFR 172.506. The label must be at least 6 inches on each side and affixed on each side and each end of the vehicle(s). The placard must be located clear of appurtenances and devices, and must be located so that dirt or water is not directed to it from the wheels of the vehicle. It must also be located away from other markings that could substantially reduce its effectiveness (49 CFR 172.516).

Taxpayer Identification Number: 752512450 Solicitation Number: N62472-94-R-0398

PERSONNEL EXPERIENCE FORM

Name: Howard S. Lazarus, P.E. **Job Title:** Project Manager

Proposed Project Title Senior Project Engineer/Manager

Years Experience

With This Firm 3 **With Other Firms** 12

Education (Degrees, year, specialization)
M.S., 1987, Environmental Engineering and Chemistry
B.S., 1978, Civil Engineering

Active Registration (Year First Registered & Discipline)
1982, Professional Engineer

Health & Safety Training, Course(s) & Date(s)
40-Hour OSHA Health and Safety Hazardous Waste Training, 1990
8-Hour OSHA Health and Safety Hazardous Waste Supervisory Training, 1993
8-Hour OSHA Health and Safety Hazardous Waste Refresher, current

Compliance to RFP Requirements	
Requirements	**Experience**
Degree in engineering, construction management, or geology program	Yes. MS in Environmental Engineering.
Six years construction/project management	Yes. Over ten years construction/project management experience.
Three years managing remedial action projects	Yes. Over eight years managing remedial action projects.
PE or CPG, or equivalent scientific certification	Yes. Professional Engineer since 1982.

Experience and Qualifications: Mr. Lazarus is a registered Professional Engineer with over 15 years of experience in environmental, civil, and facilities engineering and construction as well as project management of hazardous waste remediation projects. His extensive project management experience includes costs and materials estimating; budget preparation and management; development and negotiation of contract modifications; project and resource scheduling; performance of bidability, constructibility, and operability reviews; and interagency liaison. Specific environmental experience has encompassed the design and construction of wastewater treatment plants and groundwater extraction and treatment systems. He has also performed design reviews and managed the construction of thermal treatment systems and asbestos abatement projects. In addition, Mr. Lazarus is experienced in solid waste management, facility planning, sample collection, and environmental assessments.

EPA Region II, ARCS II, New York and New Jersey, Deputy Program Manager - Responsible for the administration and execution of major hazardous waste remediation contract in EPA Region II with the U.S. Environmental Protection Agency, including the technical review and approval of deliverables, staffing, scheduling, budgeting and subcontracting. The 77 current work assignments include preliminary assessments and site investigations, remedial investigations and feasibility studies, remedial design and remedial actions for CERCLA sites in New York and New Jersey. The engineering and construction scopes of work on these

Howard S. Lazarus, P.E., Experience and Qualifications (continued)

assignments include groundwater treatment systems, excavation, thermal treatment, vapor extraction and biological technologies. He has provided quality control/quality assurance design review, and financial control for remedial actions at the Vestal Wellfield (air stripping), Mattiace Petrochemical (excavation, UST removal, LNAPL remediation), and American Thermostat (low temperature enhanced volatilization) sites. Other activities include review and approval of health and safety plans, community relations, oversight of principal responsible party actions, and technical support to the Environmental Protection Agency.

EPA Region II, Brewster Wellfield, New York, Project Manager - Project Manager for the remedial action of an operable unit at the Brewster Wellfield site. Responsible for completion of the excavation and off-site disposal of VOC contaminated soils and construction of a groundwater treatment system for VOC contaminated groundwater consisting of a series of extraction wells, air stripping columns, and injection wells.

USACE, Rocky Mountain Area, Colorado, Deputy Area Engineer - Responsible for the execution of military and civil works construction and environmental remediation contracts. He was authorized as an Administrative Contracting Officer (ACO). Contract supervision included compliance with the FAR, DFAR, EFAR, and contract specifications; review of contractor invoices; negotiation of contract modifications; and resolution of disputes on fixed price and cost reimbursable contracts. He performed design and construction reviews for major remediation projects at Rocky Mountain Arsenal including incineration, solidification, groundwater pump and treat, and activated carbon adsorption systems. Provided on-site quality assurance of a contractor for a Rapid Response field investigation at Fort Ritchie, MD.

USACE, Fort Carson, Colorado, Director of Operations - Responsible for approval and scheduling facilities construction, renovation, and maintenance for an Army installation with a daytime population over 25,000 and a program budget in excess of $100,000,000. Facilities included family residences, office complexes, commercial and industrial activities, utilities and power plants, roads, airfields, health care facilities, a wastewater treatment plant, and sanitary landfill. Supervised the execution of environmental programs including community-wide recycling and solid waste reduction efforts, hazardous waste minimization, installation master planning, and environmental compliance issues. He directed the efforts of an in-house work force of over 650 and coordinated work with subcontractors. He also designed, reviewed, and estimated structural, geotechnical, and interior finish plans for roads, bridges, foundations, and major earthwork projects.

I am fully committed and available to serve as a Senior Project Engineer/Manager for NORDIV RAC delivery orders when called upon.

By: Howard S. Lazarus Date: 9/29/94

Taxpayer Identification Number: 752512450 Solicitation Number: N62472-94-R-0398

PERSONNEL EXPERIENCE FORM

Name: Cheryl L. Polios **Job Title:** Health & Safety Officer

Proposed Project Title Site Health & Safety Officer

Years Experience

With this Firm 3 **With Other Firms** 2

Education (Degrees, year, specialization)
B.S., 1989, Environmental Science

Active Registration (Year First Registered & Discipline)

Health & Safety Training, Course(s) & Date(s)
40-Hour OSHA Health and Safety Training for Hazardous Waste Operations, 1989
8-Hour OSHA Supervisor Health and Safety Training for Hazardous Waste Site Operations, 1991
8-Hour Health and Safety Hazardous Waste Refresher, current
Radiation Safety Training Course - 1994
CPR certified

Compliance to RFP Requirements	
Requirements	**Experience**
One year as a SHSO at hazardous waste sites where Level C and Level B PPE is required	Yes. Has over one year experience as SHSO in required areas
Specialized training in personal and respiratory protective equipment, program implementation, proper use of air monitoring instruments, air sampling methods, interpretation of results	Yes, Has specialized training in required areas
CPR certification	Yes. CPR certified
Knowledge of federal, state and local occupatinal H&S regulations	Yes. Has knowledge of federal, state and local occupational H&S regulations

Experience and Qualifications: Ms. Polios has over five years experience in health and safety issues at hazardous waste sites. As a Health and Safety Officer she implements site-specific health and safety plans at project sites in accordance with federal, state and local H&S regulations. Implementation of the plans includes employee training (site-specific, hazard communication), real-time monitoring, and recordkeeping. Also participates as an instructor in corporate health and safety training programs.

USACE, Bridgeport Rental and Oil Services Site Remediation, New Jersey, Health and Safety Officer - Conducted real-time monitoring including the use, calibration, and maintenance of organic vapor monitors (OVA, HNu), combustible gas / O_2 meters and particulate meters. Also conducted time-weighted average sampling utilizing personal sampling pumps, which also includes sample collection and data interpretation. Additionally, she conducted daily health and safety briefings, weekly tool box talks, work permit issuance, medical surveillance and health and safety officer's duties. Project has been executed in Level C but future operations may be performed in Level B.

Cheryl L. Polios Experience and Qualifications (continued)

EPRI, Toms River MGP Site, New Jersey, Health and Safety Officer - Implemented health and safety plan during drilling operations for well installation. On-site responsibilities included site-specific training and real-time monitoring for organic vapors, combustible gases and particulates. She also conducted health and safety oversight for pipe installation activities and for operation of an on-site groundwater treatment system.

USEPA, Genzale Plating Site, New York, Health and Safety Officer - Implemented health and safety plan during drilling operations, soil sampling and groundwater monitoring. On-site responsibilities included site-specific training and real-time monitoring for organic vapors and combustible gases.

USAF, Langley Research Center, Health and Safety Officer - Implemented health and safety plan during drilling operations, soil sampling and groundwater monitoring. On-site responsibilities included site-specific training and real-time monitoring for organic vapors, particulates and combustible gases.

I am fully committed and available to serve as a Site Health and Safety Officer for NORDIV RAC delivery orders when called upon.

By: Cheryl L. Polios **Date:** 9/29/94

Taxpayer Identification Number: 752512450 Solicitation Number: N62472-94-R-0398

PERSONNEL EXPERIENCE FORM

Name: Lynn E. Niles **Job Title:** Chemist

Proposed Project Title Staff Scientist

Years Experience
With this Firm 2 **With Other Firms** 2

Education (Degrees, year, specialization)
B.S. 1992, Chemistry

Active Registration (Year First Registered & Discipline)

Health & Safety Training, Course(s) & Date(s)
40-Hour OSHA Health and Safety Training, 1992
8-Hour OSHA Health and Safety Refresher, current

Compliance to RFP Requirements	
Requirements	**Experience**
Undergraduate degree in geology, hydrogeology, chemistry or biology as appropriate to assignment	Yes. BS in Chemistry
One year in environmental restoration projects	Yes. Over four years in environmental restoration projects.

Experience and Qualifications: Knowledgeable in chemical analysis, field screening headspace analysis, environmental fate and transport analysis and electronic data formatting. Prepared Remedial Investigation/Feasibility Study (RI/FS) reports, including the nature and extent of contamination section. Discussed the contaminants of concern, the ranges of contaminant concentrations with respect to the regulatory guidelines and/or cleanup levels at hazardous wastes for both private sector and federal and state clients.

Atlantic Highlands Manufactured Gas Plant Site - Ms. Niles performed the analysis of sediment chemical result data and prepared a final report summarizing the extent of MGP related contamination. Compared the analytical data to the present sediment criteria and presented her findings in the report. Also involved in the tabulation and validation of the analytical data.

U.S. Environmental Protection Agency - Contract Laboratory Program (CLP) - As coordinator for this CLP project, Ms. Niles is responsible for the management of company project files, analytical service requests, sampling paperwork, and data result acquisition.

U.S. Environmental Protection Agency's ARCS II Program GCL Tie and Treating Site - As Site Chemist, Ms. Niles performed the analysis of soils chemical result data and prepared the section of the Focused Feasibility Study (FFS) report discussing the extent of contamination. Also performed the analysis of all chemical result data and prepared a final RI/FS report summarizing the contaminate fate and transport and the extent of site contamination.

Lynn E. Niles Experience and Qualifications (continued)

U.S. Environmental Protection Agency Fried Industries Site - Ms. Niles performed the analysis of all site chemical result data and prepared a final RI/FS report discussing the contaminate fate and transport and the extent of site contamination.

USEPA Chemical Insecticide Corporation Site - As Site Chemists, Ms. Niles performed the analysis of soils chemical result data and prepared a final RI/FS report documenting the extent of soil contamination.

Kalama Chemical Site - As the Field Chemist, Ms. Niles performed field screening soil gas analysis, utilizing a HNu 321 gas chromatographer.

USEPA Olean Wellfield Site - Ms. Niles performed field screening headspace analysis, utilizing a Photovac gas chromatographer.

USEPA Vestal Wellfield Site - As Field Chemist at the Vestal Wellfield site, Ms. Niles performed field screening headspace analysis, utilizing a HNu 321 gas chromatographer.

Hooker/Ruco Corporation Site - As the Site Chemist, Ms. Niles helped prepare the fate and transport analysis section of the final report.

State University of New York at Oneonta Project Site - As Field Crew Member, performed preliminary site investigation and sampled PCB-contaminated materials through concrete wipe and soil sampling procedures.

Data Entry Operator for the GCL Tie and Treating, Vineland Chemical, Fried Industries and Chevron Chemical Company client projects. Performed electronic formatting and inputting of sampling results into data base files. Also performed statistical function and summary analyses of data for use in risk assessment spreadsheet equations.

I am fully committed and available to serve as a Staff Scientist for NORDIV RAC delivery orders when called upon.

By: Lynn E Niles Date: 9/29/94

Taxpayer Identification Number: 752512450 Solicitation Number: N62472-94-R-0398

PERSONNEL EXPERIENCE FORM

Name: Donald P. Campbell Job Title: Assistant Geologist

Proposed Project Title Staff Scientist

Years Experience
With this Firm 2 With Other Firms 0

Education (Degrees, year, specialization)
B.A., 1992, Geology

Active Registration (Year First Registered & Discipline)

Health & Safety Training, Course(s) & Date(s)
40-Hour OSHA Health and Safety Hazardous Waste Training, 1992
8-Hour Health & Safety Refresher, current
4-Hour Radiation Training, 1994

Compliance to RFP Requirements	
Requirements	**Experience**
Undergraduate degree in geology, hydrogeology, chemistry or biology as appropriate to assignment	Yes. BA in Geology
One year in environmental restoration projects	Yes. Over two years in environmental restoration projects.

Experience and Qualifications: Experience includes preparation of sampling plans and specifications, field supervision of monitoring well and soil boring installations, and soil and groundwater sampling relating to hazardous waste site investigation and remediation projects. Primary responsibilities have included preparation of field plans, conducting hydrogeologic and soil investigations of hazardous waste sites, and supervision of remediation contractors conducting sampling and construction operations.

Jersey Central Power and Light Co., Boonton Former Manufactured Gas Plant Site, New Jersey, Project Geologist - For this interim remedial action project that required the removal and disposal of coal tar, developed wells for groundwater sampling and performed, sampled, and logged shallow soil borings to delineate coal tar contamination. Logged soils according to USCS. Performed sewer sampling to delineate contaminants.

AlliedSignal Aerospace Co., Sumitomo Site, Teterboro, New Jersey, Project Geologist - For this turnkey remediation project, sampled wells to delineate contamination and performed sand-cone testing to determine fill density for asphalt cap.

EPA ARCS II, Mattiace Petrochemical Site, New York, Project Geologist -Responsible for placement and installation of soilborings, wells, and piezometers. Collected soil samples. Logged soils according to USCS. Determined proper depths for screens based on real-time field data.

Donald P. Campbell Experience and Qualifications (continued)

Times Beach Site, Missouri, Project Geologist - For this remedial action project, performed boundary verification sampling to delineate the vertical and horizontal extent of dioxin contaminated soils. Additional responsibilities included sample shipment and sample management according to DOE regulations for hazardous substances. Based on rapid turnaround analyses, contaminated sections of roadways were identified for excavation and disposal at the thermal treatment unit.

Constellation Energy Site, New Jersey, Project Geologist -For this sensitive and active site mobilized and demobilized field teams and equipment, and was responsible for the development and sampling of wells to verify the presence of transformation products.

Schering-Plough Site, New Jersey, Project Geologist - Responsible for the development and sampling of wells for quarterly monitoring.

JCP&L Co., Larochere Property Site, New Jersey, Project Geologist - Identified soils using the Burmister and Unified Soil Classification Systems (USCS) to determine vertical and areal extent of fill material and sampling to identify potential coal tar contamination.

Chevron Chemical Company, Ortho Pharmaceuticals Site, South Plainfield, New Jersey, Remedial Field Supervisor - For this turnkey remedial action project, supervised union laborers and operators in sampling, construction, decontamination, and continuing site maintenance. Lead daily meetings on site activities and maintained site supplies and inventory.

EPA ARCS II, Vineland Chemical Corporation, Inc. Site, Vineland, New Jersey, Project Geologist - Designed and wrote sampling plan, designed soil storage area, and wrote subcontractor work specification for pilot scale soil washing/separation treatability study. Performed sampling of stream and lake sediments for biossay study. Access to sampling points required navigating the Maurice River and Union Lake in small boats both motor powered and rowed. Sampling was often performed using a Ponar dredge.

Chevron, Refinery Site, Perth Amboy, New Jersey, Project Geologist - Logged soil borings using Burmeister Classification System for geotechnical analyses of existing lagoon boundary dikes for remedial design at an active oil refinery. Geotechnical sampling and testing methods included split spoons, Shelby tubes, and vein shear test. Investigated the condition of existing monitoring wells and recommended repairs for wells to meet NJDEP specifications. Wrote sampling procedures and checklists for refinery-wide field sampling and analysis plan and lagoon remediation plan.

I am fully committed and available to serve as a Staff Scientist for NORDIV RAC delivery orders when called upon.

By: Donald P. Campbell Date: 9/29/94

(PART B) SUBMITTAL REGISTER

Page ____ of ____

Location: | Contractor:

CONTRACTOR ACTION			APPROVING AUTHORITY ACTION				CONTR	
ACT. CODE	DATE OF ACTION	DATE FWD TO APPR AUTH / DATE RECD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RECD FROM OTH REVIEWER	ACT. CODE	DATE OF ACTION	MAILED TO CONTR / RECD FROM APPR AUTH	REMARKS
(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)
								1)
								2)
								3)
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								7)
								8)
								10)
								11)
								12)
								13)
								14)
								15)
								16)
								17)
								18)
								19)
								20)

ACTION CODES: NR: Not Reviewed AN: Approved as Noted
A: Approved RR: Disapproved; Revise and Resub
(Others may be prescribed by the Transmittal Form)

SUBMITTAL REGISTER (PART A)

Contract Number: | Project Title: REMOVAL OF CONTAMINATED SOIL, NWIRP, BETHP

SPEC SECTION NO.	SD NO, AND TYPE OF SUBMITTAL MATERIAL OR PRODUCT	SPEC PARA NO.	CLASSIF/ APPR BY CO *	GOVT OR A/E REVIEWER	TRANS CONTROL NO.	PLANNED SUBMITTAL DATE
(a)	(b)	(c)	(d)	(e)	(f)	(g)
1) 01010	SD-18, Records	1.2.1				
2)	Work Plan	1.2.1.1	G			
3)	Pre-Excavation Sampling Plan	1.2.2	G			
4)	Investigation Report	1.2.3	G			
5)	Community Air Monitoring Plan	1.2.4	G			
6) 01010	SD-18, Records	1.3.1				
7)	As Built Records	1.3.1.1	G			
8)	Environmental Conditions Report	1.3.1.2	G			
9)	Network Analysis Diagram	1.3.1.3	G			
0)	Status Reports	1.3.1.3	G			
1)	QC Meeting Minutes	1.3.1.4	G			
2)	Test Results Summary Report	1.3.1.5	G			
3)	Contractor Production Report	1.3.1.6	G			
4)	QC Report	1.3.1.7	G			
5)	Rework Items List	1.3.1.8	G			
6)	Permits	1.3.1.9	G			
7)	Permits	3.3.1	G			
8)	Contractor's Closeout Report	1.3.1.10	G			
9) 02076	SD-08, Statements	1.5.1				
0)	Training certification	1.5.1.1				

* Navy Notes:
Approved by:
G: Contracting Officer
Blank: CQC Manager

* NASA Notes:
Approved by:
Blank: Contracting Officer

* Army Notes:
Classification:
GA: Gov't Approval
FIO: For Information Only

Contract Number: | Project Title: REMOVAL OF CONTAMINATED SOIL, NWIRP, BETHP

SPEC SECTION NO.	SD NO, AND TYPE OF SUBMITTAL MATERIAL OR PRODUCT	SPEC PARA NO.	CLASSIF/ APPR BY CO *	GOVT OR A/E REVIEWER	TRANS CONTROL NO.	PLANNED SUBMITTAL DATE
(a)	(b)	(c)	(d)	(e)	(f)	(g)
1)	Qualifications of CIH	1.5.1.2				
2)	PCB removal work plan	1.5.1.3				
3)	PCB disposal plan	1.5.1.4	G			
4)	Notification	1.5.1.5				
5)	Transporter certification	3.6				
6)	Certificate of disposal	3.6.1	G			
7) 02077	SD-18, Records	1.3.1				
8)	Hazardous Waste Plan	1.3.1.1	G			
	Hazardous Waste Permits	1.3.1.2	G			
0)	Regulatory Requirements	1.3.1.3	G			
1)	Shipment Manifest	1.3.1.4	G			
2)	Delivery Manifest	1.3.1.5	G			
3) 02220	SD-12, Field Test Reports	1.3.1				
4)	Fill and backfill	3.9.2.1				
5)	Density tests	3.9.2.2				

* Navy Notes:
Approved by:
G: Contracting Officer
Blank: CQC Manager

* NASA Notes:
Approved by:
Blank: Contracting Officer

* Army Notes:
Classification:
GA: Gov't Approval
FIO: For Information Only

SAMPLING AND ANALYSIS PLAN
FOR
REMOVAL ACTION
AT
NAVAL WEAPONS RESERVE INDUSTRIAL PLANT
BETHPAGE, LONG ISLAND

ISSUED:

SEPTEMBER, 1995

PREPARED FOR:

Northern Division
Naval Facilities Engineering Command
10 Industrial Highway
Lester, PA 19113

PREPARED BY:

Foster Wheeler Environmental Corporation
2300 Lincoln Highway
One Oxford Valley - Suite 200
Langhorne, PA 19047-1829

REMEDIAL ACTION CONTRACT N62472-94-D-0398
DELIVERY ORDER NO. 0004

NAVAL WEAPONS INDUSTRIAL RESERVE PLANT (NWIRP)
BETHPAGE, NEW YORK
SAMPLING AND ANALYSIS PLAN

TABLE OF CONTENTS

NAVAL WEAPONS INDUSTRIAL RESERVE PLANT (NWIRP)
BETHPAGE, NEW YORK
SAMPLING AND ANALYSIS PLAN

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1.0 INTRODUCTION

Presented herein is the Sampling and Analysis Plan (SAP) for the pre-excavation soil sampling to be undertaken by Foster Wheeler Environmental Corporation (Foster Wheeler Environmental) at the Naval Weapons Industrial Reserve Plant (NWIRP), Bethpage, New York. The purpose of the sampling is to define the extent of polychlorinated biphenyl and arsenic contamination at the site and to refine the soil contamination volume estimate for the remedial action. In addition, the sampling will be used as a confirmation of the lack of ancillary contamination. The work is being performed under US Navy Contract N62472-94-D-0398.

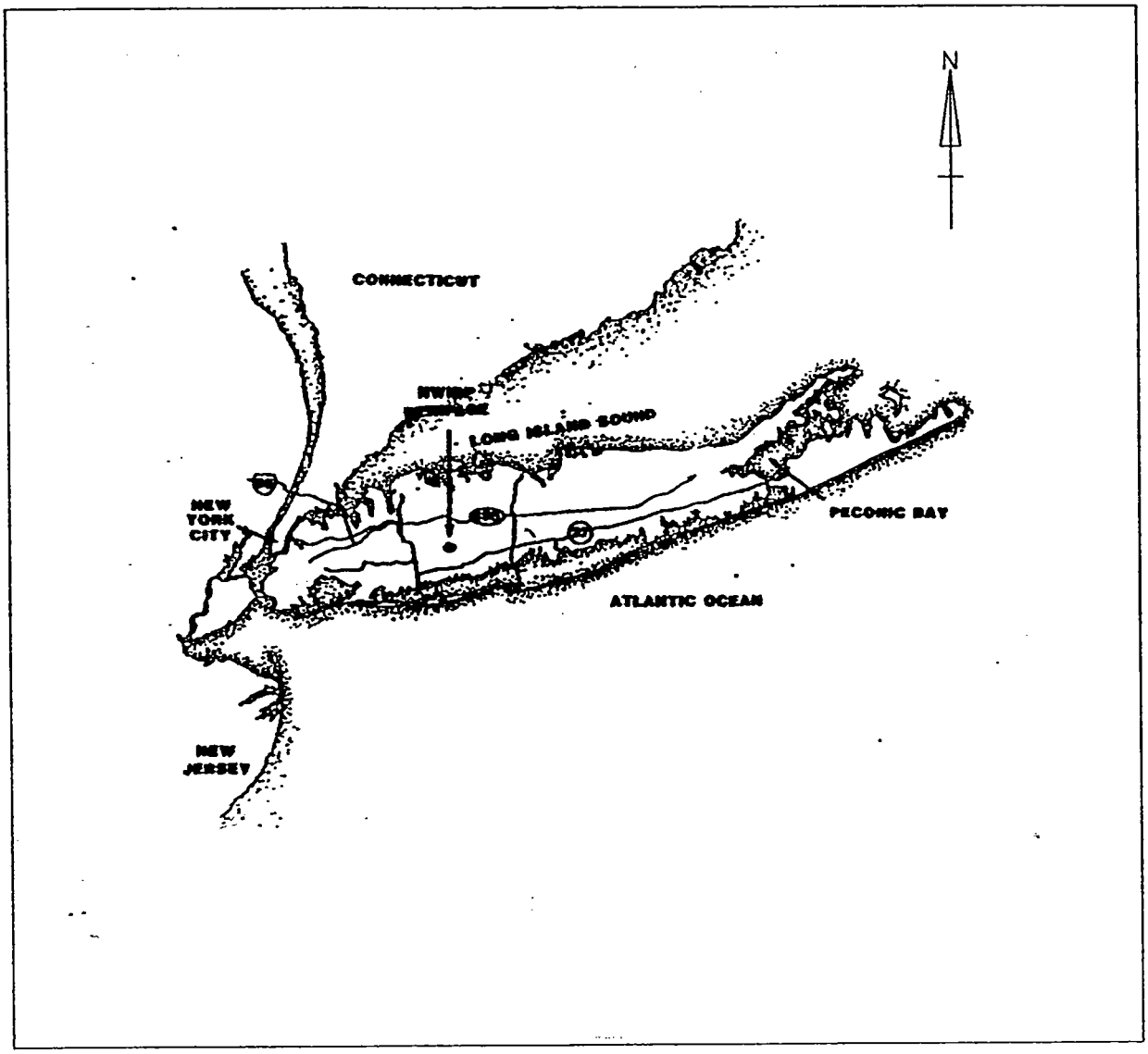
The SAP will present the procedures to be followed during the pre-excavation field investigation activities. Specifically, the SAP addresses:

- Analytical Requirements
- Responsibilities of Site Personnel
- Sample Analytical Program
- Sample Packaging and Shipment
- Documentation
- Field Sampling Program
- Quality Assurance/Quality Control (QA/QC) of Field Sampling
- Procedures for Field Changes and Corrective Actions

The Quality Assurance Project Plan (QAPP), presented in Sections 3.2 and 4, establishes the structure of the quality assurance plan for the field sampling activities. Site-specific Standard Operating Procedures (SOPs) have been generated to describe the sampling procedures (see Section 3.3). Any modifications necessary to these SOPs due to field conditions or other unforeseen situations shall be recorded in the site logbook, documented on the appropriate Field Change Request (FCR) forms by site personnel, and approved by the Senior Project Manager (see Section 4.2).

1.1 SITE LOCATION AND DESCRIPTION

NWIRP Bethpage is a 108-acre site located in Nassau County on Long Island, New York (see Figure 1-1). The site is bordered on the north, west and south by the Grumman Aerospace complex, which covers approximately 605 acres, and on the east by a residential neighborhood. NWIRP Bethpage is currently listed by the New York State Department of Environmental



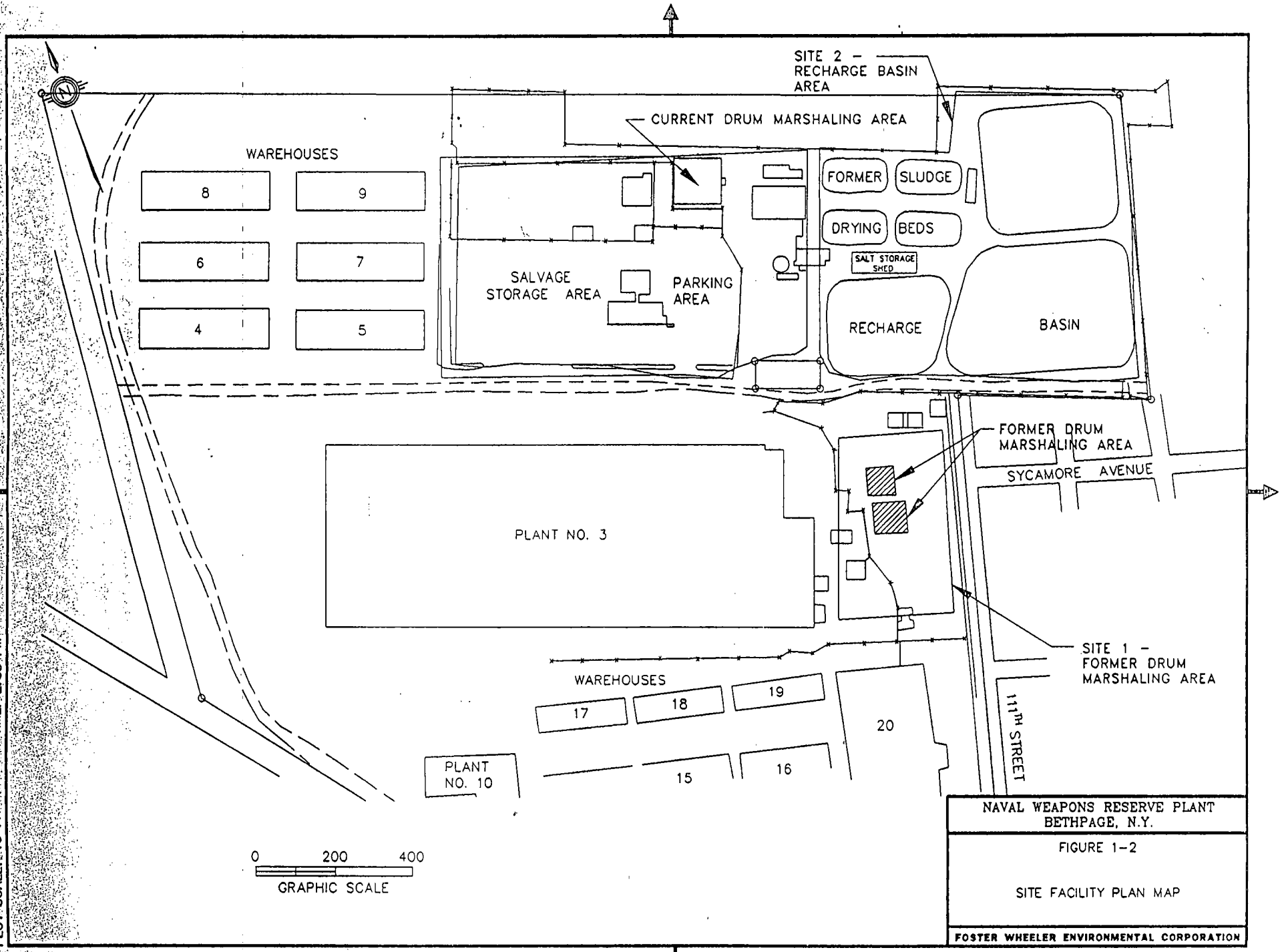
NAVAL WEAPONS RESERVE PLANT
BETHPAGE, N.Y.

FIGURE 1–1

SITE LOCATION MAP

FOSTER WHEELER ENVIRONMENTAL CORPORATION

CAD FILE NAME: FIG1-1.DWG
PLOT FILE: 1=1
DATE: 9/19/95
TIME: 9:55 AM



CAD FILE NAME: IWRS10.DWG DATE: 9/19/95
PLOT SCALE: TO FIT TIME: 2:35 PM

Conservation (NYSDEC) as an "inactive hazardous waste site" (#1-30-003B) [Halliburton NUS (HNUS), 1995]. The layout of the NWIRP Bethpage facility is shown in Figure 1-2.

1.2 SITE HISTORY

The NWIRP Bethpage plant was established in 1933 and is still active. Since its inception, the primary mission for the facility has been the research prototyping, testing, design engineering, fabrication, and primary assembly of military aircraft.

The facilities at NWIRP Bethpage include four plants, two warehouse complexes (north and south), a salvage storage area, water recharge basins, an industrial wastewater treatment plant, and several smaller support buildings. The four plants are either used for assembly and prototype testing (Plant Nos. 3, 5 and 20) or as quality control laboratories (Plant No. 10).

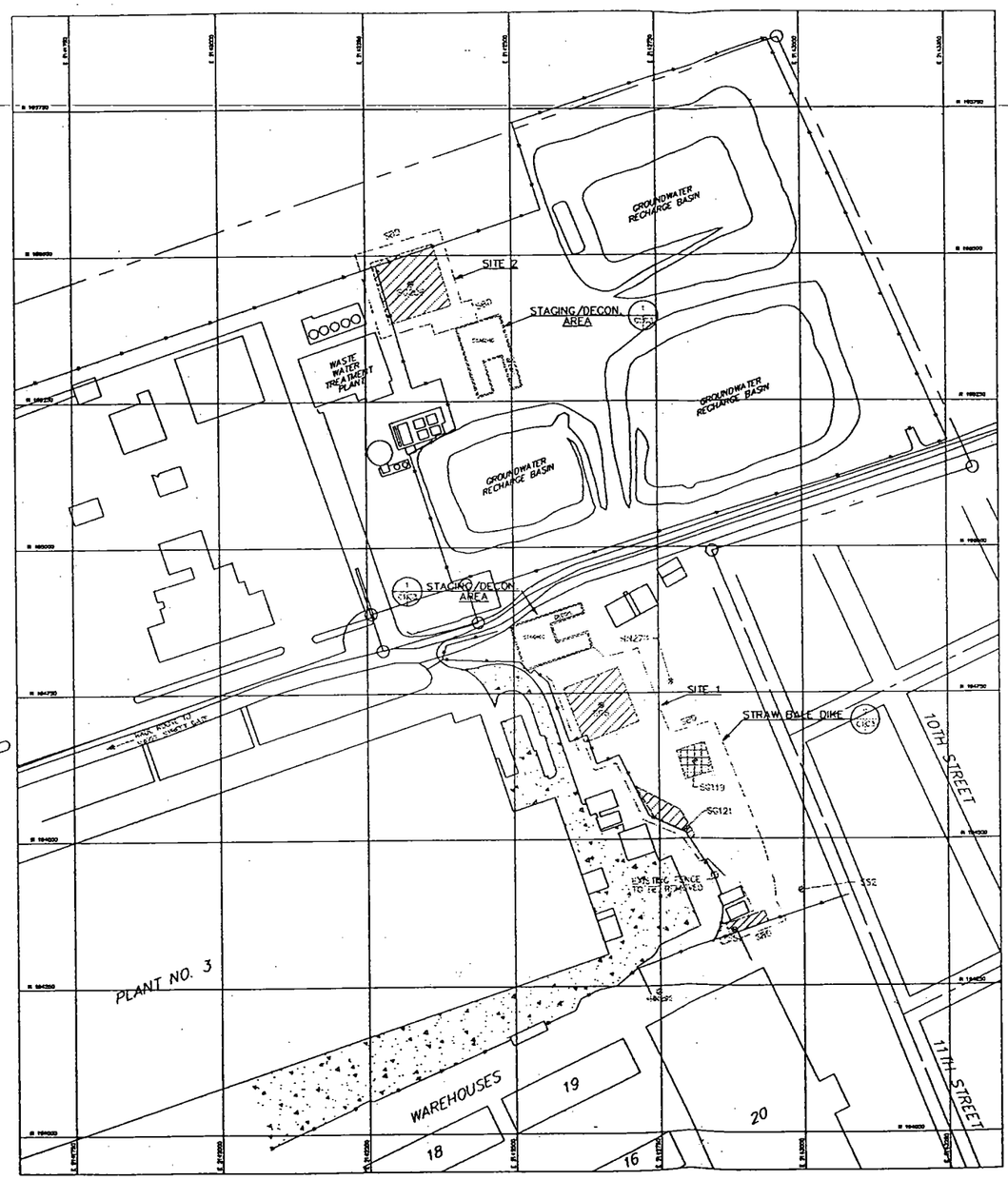
Hazardous waste management practices for Grumman facilities on Long Island included the marshaling of drummed wastes on the NWIRP Bethpage property. Such storage first took place on a cinder-covered surface over the cesspool field, east of Plant No. 3 (see Figure 1-2). In 1978, the collection and marshaling point was moved a few yards south of the original site, to an area on a concrete pad. In 1982, drummed waste storage was transferred to the present Drum Marshaling facility, located in the Salvage Storage Area. Materials stored at the former marshaling areas included waste halogenated and nonhalogenated solvents. In addition, liquid cadmium wastes and cyanide were also reported to be stored in this area [HNUS, 1993].

This SAP covers the pre-excavation soil sampling of Sites 1 and 2 of the facility (see Figure 1-3). A description of each site is presented below.

Site 1 - Former Drum Marshaling Area

Site 1 is located in the middle third of the NWIRP Bethpage facility, and is found east of Plant 3 (see Figure 1-3). It consists of two concrete drum storage pads, which are no longer active, and an abandoned cesspool leach field. The drums of waste marshaled here were reported to contain waste halogenated and nonhalogenated solvents, cadmium, and cyanide. In addition, this area has been used for storage of various types of equipment and heavy materials, including transformers [HNUS, 1993].

Polychlorinated biphenyls (PCBs) were detected in the soils of the former drum marshaling area during the Phase 2 Remedial Investigation (RI) conducted by Halliburton NUS (HNUS).



LEGEND:

- PROPERTY LINE
- EXISTING FENCE
- PCB AREA
- ARSENIC AREA
- EXISITING CONCRETE
- STAGING — STAGING AREA
- DECON — DECONTAMINATION AREA
- SS – SURFACE SAMPLE
- SB – SOIL BORING
- SG – SOIL GAS SAMPLE
- SBD — STRAW BALE DIKE
- SG5 — SAMPLE POINT

NOTE:

STAGING AND DECONTAMINATION AREAS SHOWN ARE APPROXIMATE LOCATIONS. THE CONTRACTOR SHALL ADJUST LOCATIONS BASED UPON APPLICABLE TRAFFIC PATTERNS.

0 100 200 300

GRAPHIC SCALE

NAVAL WEAPONS RESERVE PLANT
BETHPAGE, N.Y.

FIGURE 1-3

LOCATION OF SITES 1 AND 2

FOSTER WHEELER ENVIRONMENTAL CORPORATION

CAD FILE NAME: FIG1-2.DWG
SCALE: 1=200
DATE: 9/19/95
TIME: 3:33 PM

Individual PCB concentrations ranged from 0.027 ppm to 1300 ppm, and PCBs were detected in all 8 of the sampling locations. Sampling depths ranged from 0 feet to 5 feet below grade [HNUS, 1993].

Concentrations of arsenic were present in the soils of Site 1 during the initial RI sampling [HNUS, 1993]. Arsenic was detected in 8 of the 9 sampling locations, and was found at a maximum concentration of 3380 ppm in a sample located near the center of the former drum marshaling area (see Figure 1-3 for location of potential arsenic contamination).

Site 2 - Recharge Basin Area

The Site 2 area is located in the northeast corner of the NWIRP Bethpage facility, and is found north of Site 1 (see Figure 1-3). It contains three groundwater recharge basins which currently receive non-contact cooling water. Historically, these basins received rinse waters from Grumman operations. These rinse waters were directly exposed to the industrial processes at the plant, and therefore, they may have contained chemicals used in the rinse process (e.g., halogenated and/or nonhalogenated solvents). In addition, former sludge drying beds have been located within Site 2; these beds no longer exist and have been filled in. Sludge from the Plant 2 industrial waste treatment facility was dewatered in these beds before being disposed of off site.

Soil sampling within Site 2 has shown PCB contamination. During the Phase 2 RI investigation, Aroclor-1248 and Aroclor-1254 were detected here, with individual PCB concentrations ranging from 0.048 ppm (at 0 feet below grade) to 33 ppm (at 3-5 feet below grade). The more elevated levels of PCBs were detected in the former sludge drying beds, in the north-northwestern section of Site 2.

2.0 PROGRAM OBJECTIVES

2.1 DESCRIPTION OF FIELD INVESTIGATION

The field investigation will consist of the following subtasks:

- Mobilization
- Site Survey
- Surface Soil Sampling
- Subsurface Soil Sampling
- Equipment Wipe Sampling
- Demobilization

General site operations and field methodologies will be described in the following sections.

Laboratory analyses of the environmental samples will be conducted in accordance with NYSDEC Analytical Services Protocol-Contract Laboratory Program (ASP-CLP) or US Environmental Protection Agency (EPA) SW-846 methodologies. The soil samples will undergo analyses for polychlorinated biphenyls (PCBs) and Toxicity Characteristic Leaching Procedure (TCLP) arsenic, with twenty percent of the samples undergoing analysis for full Target Compound List (TCL) Organics (volatiles, semi-volatiles and pesticides/PCBs) and Target Analyte List (TAL) Metals. The data will be utilized to delineate the lateral and vertical extent of PCB- and arsenic-contaminated soils in the two site areas (i.e., Sites 1 and 2), and to establish the limits of contamination for remediation purposes. In addition, the TCL/TAL sample data will be used to confirm the lack of ancillary contamination at the NWIRP Bethpage site.

2.2 PERSONNEL RESPONSIBILITIES

The field team will include the following personnel:

The **Senior Project Manager (SM)** has final responsibility for the development of the SAP and management of the project team.

The **Project Chemist** is responsible for assuring that proper collection, packaging, preservation and shipping of samples is performed in accordance with NYSDEC ASP-CLP guidelines. In addition, the project chemist is responsible for coordinating with the subcontractor laboratory

during sample analysis and for reviewing the analytical data received from the subcontractor laboratory.

The **Project Health and Safety Officer (HSO)** is responsible for the safety of all site personnel as detailed in the site-specific Health and Safety Plan (HASP), presented under separate cover.

The **Drilling Subcontractor** is responsible for supplying all services (including labor), equipment, and material required to perform the drilling and testing, in addition to all maintenance and quality control of such equipment. The drilling subcontractor will be responsible for all required drilling permits, licenses, and clearances. The drilling subcontractor will also be responsible for following decontamination procedures specified in the bid package. Upon completion of the work, the drilling subcontractor will be responsible for demobilizing all equipment, cleaning any materials deposited on site during drilling operations, and properly backfilling any borings.

The **Laboratory Subcontractor** is responsible for supplying all services (including labor), equipment and material required to perform the analysis of the environmental field samples. The laboratory subcontractor will be responsible for following all methodology protocols, including quality assurance/quality control (QA/QC) requirements. In addition, the laboratory subcontractor will be responsible for the proper disposal, including all associated costs, of the environmental samples upon completion of the analytical work.

The **Surveying Subcontractor** is responsible for supplying all services (including labor), equipment and material required to perform a detailed site survey. This survey will link the pre-excavation sampling locations to the existing surveys of on-site structural features such as fences, buildings, and paved/unpaved areas.

3.0 FIELD INVESTIGATION ACTIVITIES

This section addresses the field investigation and sampling operations by matrix and type of procedures including:

- sample tracking system
- quality assurance/quality control
- mobilization and demobilization
- site survey
- surface soil sampling
- subsurface soil sampling
- field equipment wipe sampling
- decontamination

3.1 SAMPLE SUMMARY AND TRACKING SYSTEM

3.1.1 Sample Identification System

Each sample will be specifically designated for identification. Sample locations will be identified by a two letter code (i.e., "SB" for soil borings and "WP" for field wipe samples) followed by a two digit number ("01"). The depth in feet of the soil boring sample will be identified after the location information. Environmental field duplicate samples will be identified with a "D" after the depth indicator. For example, the soil sample obtained at soil boring number 3 at a 4 foot depth would be identified as SB-03-4. A duplicate sample taken from this location would be identified as SB-03-4D. A wipe sample collected from the second piece of equipment sampled would be identified as WP-02.

In addition, rinsate blanks, field water blanks and wipe blanks will be collected for quality assurance. These samples will be identified by a two letter code depicting the type of blank, followed by the date the blank sample was collected. The letter codes are "RB" for rinsate blank, "FB" for field water blank, and "WB" for wipe blank. For example, a rinsate blank taken during sampling on September 30, 1995 would be identified as RB-093095.

All location information for the samples will be recorded in the field sampling logbook (see Section 3.1.4).

3.1.2 Sample Analytical Requirements

Analytical testing will be performed by a NYSDEC approved laboratory, following either NYSDEC ASP-CLP and/or SW-846 protocols. All of the soil samples will be analyzed for PCBs and TCLP arsenic, with twenty (20) percent of the soil boring samples being analyzed for full TCL/TAL constituents. The three (3) field equipment wipe samples and one (1) wipe blank will be analyzed for PCBs only. Table 3-1 summarizes the proposed analytical program. Sample collection and analytical protocol information, including sample type, number of samples and duplicates, matrix, sampling device, analytical parameter, sample container requirements, sample preservation, laboratory analysis, method detection limits, and holding times, is presented in Table 3-2.

3.1.3 Sample Packaging and Shipping

Samples will be packaged and shipped according to the applicable method guidelines. Each environmental sample will be properly identified (see Section 3.1.1) and sealed in a polyethylene (PE) bag. The bag shall then be placed in a metal or hard plastic cooler which also has been lined with a large polyethylene bag. Samples shall be packed with sufficient ice (sealed in PE bags) to cool the samples to 4°C. In addition, the cooler shall be filled with enough non-combustible absorbent cushioning material to minimize the possibility of container breakage. The large bag is then sealed, the completed chain-of-custody form is sealed in a PE bag and taped to the underside of the cooler lid, and the cooler container closed. Custody seals and strapping tape shall then be affixed. Copies of the chain-of-custody shipping forms will be retained by Foster Wheeler Environmental.

3.1.4 Sample Documentation

The sampling team or an individual performing a particular sampling activity will be required to maintain a field logbook. This field logbook will be a bound weatherproof notebook that shall be filled out immediately after sampling at the location of sample collection. It shall contain sample particulars including sample number, collection time, location, descriptions, methods used, daily weather conditions, field measurements, name of sampler, and other site-specific observations. It shall also contain (as applicable) any deviations from protocol, visitor's names or community contacts, geologic descriptions, and other site-specific information determined to be noteworthy. The outside cover of the field logbook(s) will be decontaminated, if necessary, using soap swabs such as Handi-wipes.

TABLE 3-2

SAMPLE COLLECTION AND ANALYTICAL PROTOCOL INFORMATION
NAVAL WEAPONS INDUSTRIAL RESERVE PLANT, BETHPAGE

Sample Type	Number of Samples [1]	Matrix	Sampling Device	Parameter	Sample Container [2]	Sample Preservation	Analytical Method [3]	Method Detection Limits [4]	Holding Times [5]
Soil Boring	228 (12)	Soil	Split Spoon	PCBs	(1) 8 oz. glass w/ Teflon lined cap	Cool to 4°C	Method 8080 (SW-846)	Compound Specific (33-67 ug/kg)	10 days extract; 40 days analyze
				TCLP Arsenic	(1) 8 oz. glass w/ Teflon lined cap	Cool to 4°C	Extract as per Method 1311; analyze as per Method 7060A (SW-846)	1 mg/L	6 months extract; 6 months analyze
	46 (3)	Soil	Split Spoon	TCL Volatiles	(2) 40 ml VOA vials w/ Teflon line septum	Cool to 4°C	Method 91-1 (ASP-CLP)	Compound Specific (10 ug/kg)	10 days
				TCL Extractables	(1) 8 oz. glass w/ Teflon lined cap	Cool to 4°C	Methods 91-2 & 3 (ASP-CLP)	Compound Specific (1.7-800 ug/kg)	10 days extract; 40 days analyze
				TAL Metals	(1) 8 oz. glass w/ Teflon lined cap	Cool to 4°C	Method CLP-M (ASP-CLP)	Element Specific [6] (0.2-5000 ug/L)	6 months (Hg-26 days)
Rinsate Blank	5	Water	Collected Rinsate	PCBs	(4) 1-L amber glass	Cool to 4°C	Method 8080 (SW-846)	Compound Specific (1-2 ug/L)	7 days extract; 40 days analyze
				TCL Volatiles	(2) 40 ml VOA vials w/ Teflon line septum	HCl to pH<2; Cool to 4°C	Method 91-1 (ASP-CLP)	Compound Specific (10 ug/L)	10 days
				TCL Extractables	(4) 1-L amber glass	Cool to 4°C	Methods 91-2 & 3 (ASP-CLP)	Compound Specific (0.05-25 ug/L)	5 days extract; 40 days analyze
				TAL Metals	(1) 1-L polyethylene	HNO_3 to pH<2; Cool to 4°C	Method CLP-M (ASP-CLP)	Element Specific [6] (0.2-5000 ug/L)	6 months (Hg-26 days)
Field Water Blank	1	Water	Direct Fill	PCBs	(4) 1-L amber glass	Cool to 4°C	Method 8080 (SW-846)	Compound Specific (1-2 ug/L)	7 days extract; 40 days analyze
				TCL Volatiles	(2) 40 ml VOA vials w/ Teflon line septum	HCl to pH<2; Cool to 4°C	Method 91-1 (ASP-CLP)	Compound Specific (10 ug/L)	10 days

TABLE 3-1

SUMMARY OF ANALYTICAL PROGRAM
NAVAL WEAPONS INDUSTRIAL RESERVE PLANT, BETHPAGE

Sample Type	PCB Samples [1]	TCLP Arsenic Samples [2]	TCL/TAL Samples [3]
Site 1 Soil Borings:			
Samples	128	128	26
Duplicates	7	7	2
Site 2 Soil Borings:			
Samples	100	100	20
Duplicates	5	5	1
QA/QC [4]:			
Rinsate Blanks	5	--	5
Field Water Blanks	1	--	1
Field Equipment Wipe Blanks	3	--	--
Wipe Blanks	1	--	--
Total Number of Samples:	250	240	55

Notes:

1. PCBs are polychlorinated biphenyls, as specified in SW-846, Method 8080, September 1994.
2. TCLP is the Toxicity Characteristic Leaching Procedure, as specified in SW-846, Method 1311, July 1992.
3. TCL/TAL includes Target Compound List Organics and Target Analyte List Metals, as specified in NYSDEC Analytical Services Protocol, December 1991.
4. The number of QA/QC samples is estimated.

TABLE 3-2

SAMPLE COLLECTION AND ANALYTICAL PROTOCOL INFORMATION
NAVAL WEAPONS INDUSTRIAL RESERVE PLANT, BETHPAGE

Sample Type	Number of Samples [1]	Matrix	Sampling Device	Parameter	Sample Container [2]	Sample Preservation	Analytical Method [3]	Method Detection Limits [4]	Holding Times [5]
Field Water Blank Cont'd	1	Water	Direct Fill	TCL Extractables	(4) 1-L amber glass	Cool to 4°C	Methods 91-2 & 3 (ASP-CLP)	Compound Specific (0.05-25 ug/L)	5 days extract; 40 days analyze
				TAL Metals	(1) 1-L polyethylene	HNO_3 to pH<2; Cool to 4°C	Method CLP-M (ASP-CLP)	Element Specific [6] (0.2-5000 ug/L)	6 months (Hg-26 days)
ield Equipment ipe Blanks	3	Wipe	Cotton Swab Pad	PCBs	Cotton swab pad in (1) 8 oz. glass w/ Teflon lined cap	Cool to 4°C	Method 8080 (SW-846)	Compound Specific (1-2 ug/L in extract)	7 days extract; 40 days analyze
Wipe Blank	1	Wipe	Cotton Swab Pad	PCBs	Cotton swab pad in (1) 8 oz. glass w/ Teflon lined cap	Cool to 4°C	Method 8080 (SW-846)	Compound Specific (1-2 ug/L in extract)	7 days extract; 40 days analyze

Notes:

1. The number in parentheses in the "number of samples" column denotes the number of duplicate samples. The number of rinsate and field water blank samples is estimated.

2. The number in parentheses in the "sample container column" denotes the number of containers needed. Double volume is required for matrix spike/matrix spike duplicate analysis of soil samples.

3. Method abbreviations:
   ASP-CLP - NYSDEC Analytical Services Protocol (Contract Laboratory Program), December 1991.
   SW-846 - Test Methods for Evaluating Solid Waste, OSWER, November 1986, revised January 1995.

4. Detection limits for soil samples may vary due to percent moisture. The limits listed for soil are based on wet weight.

5. All holding times listed are from Verified Time of Sample Receipt (VTSR) by the laboratory unless noted otherwise.

6. The detection limits given are the instrument detection limits obtained in pure water that must be met using the procedure in Exhibit E of the ASP-CLP method. Actual detection limits for field samples will be higher.

3.2 QUALITY ASSURANCE/QUALITY CONTROL

This section details the Quality Assurance/Quality Control (QA/QC) sample requirements for all field activities at the NWIRP Bethpage site.

3.2.1 Field Instrument Calibration and Preventive Maintenance

Site personnel will be responsible for assuring that a master calibration/maintenance log will be maintained for each measuring device (Figure 3-1). Each log at a minimum will include the following (as applicable):

- Name of device and/or instrument calibrated
- Device/instrument serial/ID number
- Frequency of calibration
- Date of calibration
- Results of calibration
- Name of person performing calibration
- Identification of calibration gas (HNu, OVA)
- Buffer solutions (pH meter only)

Equipment to be used each day shall be calibrated prior to the commencement of the day's activities and maintained in accordance to manufacturer manual specifications.

Personnel monitoring equipment (HNu PI-101 Organic Vapor Meter and OVA 128 Organic Vapor Analyzer) will be calibrated and maintained in accordance to manufacturer manual specifications. Additional information on personnel monitoring equipment can be found in the site-specific HASP, issued under separate cover.

3.2.2 QA/QC Sample Collection Frequency

Site-specific guidance requirements on the collection of QA/QC samples are listed below.

Rinsate Blanks

A rinsate blank sample will consist of pouring deionized, demonstrated analyte-free water over decontaminated sampling equipment to evaluate potential cross contamination from inadequate

FIGURE 3-1

EQUIPMENT CALIBRATION LOGSHEET

Instrument (Name/Model No./Serial No.): _____

Manufacturer: _____ Date Purchased: _____ Frequency of Calibration: _____

CALIBRATION DATE	INITIAL SETTINGS	STANDARD GAS USED	PROCEDURE	ADJUSTMENTS MADE	FINAL SETTINGS	SIGNATURE	COMMENTS

decontamination. The frequency of rinsate blank collection is one per decontamination event per type of equipment, not to exceed more than one per day. Rinsate blanks will be analyzed for the same parameters as the associated samples. Sampling activities will be scheduled and sufficient equipment will be on hand to minimize the number of rinsate blank samples required.

Rinsate blanks will be taken in accordance to the procedure described below:

1. Decontaminate the sampling equipment using the procedure specified in Section 3.4 of this SAP.

2. Pour deionized water over the sampling equipment and collect the rinsate in the appropriate sample bottles. Volatile organic analysis (VOA) vials are to be filled first (as applicable).

3. Preserve the samples as specified in Table 3-2. Test the resulting pH (as applicable) by pouring a small portion of the sample on broad range pH paper over a collection bowl. Appropriately label each sample container and place the sample in the appropriate cooler for shipment.

4. Complete the necessary sampling paperwork (e.g., sample labels, custody seals, chain-of-custody forms, etc.). Record sample information in the field logbook.

Field Water Blanks

A sample of the deionized water used during the field investigation work will be analyzed at a rate of one per water batch. The field water blank sample will be used to confirm that any source of contamination in the rinsate blanks is not from the deionized water. These samples will be analyzed for the same constituents as the associated environmental samples.

Field Equipment Wipe Blanks

Three (3) field equipment wipe samples will be collected from the sampling equipment after appropriate decontamination has been done (see Section 3.4). These samples will determine potential PCB concentration levels remaining on the equipment. The wipes will be sampled in accordance with the procedures detailed in the SOP presented below.

Wipe Sampling Procedure (SOP #1)

The wipe sampling will be performed by the following procedure:

1. Wear appropriate health and safety equipment as specified in the site-specific HASP.

2. Open decontaminated split-spoon sampling equipment so that the inside section of both halves of the spoon is accessible.

3. Hold the cotton swab pad with a decontaminated stainless steel clamp or tongs, wet with a 1:1 acetone:hexane (pesticide grade) solution, and wipe up and down the inside sections of the split-spoon five times on each half, applying moderate pressure. Wipe the entire area to insure that all of the sample material is collected. A wipe blank (see below) is to be generated by only wetting the cotton swab pad with the same volume of 1:1 acetone:hexane (pesticide grade) solution utilized to collect the wipe samples.

4. Place the cotton swab pad in the designated sample bottle container. Appropriately label each sample container.

5. Place the analytical samples in a sample cooler and chill to 4°C.

6. Complete the necessary sampling paperwork (e.g., sample labels, custody seals, chain-of-custody forms, etc.) for the analytical samples. Record sample information in the field logbook.

Wipe Blank

One (1) wipe blank will be generated by wetting a cotton swab pad with the acetone:hexane solution utilized to collect the wipe samples (see step 3 in SOP #1 above). The wipe blank will be analyzed for the same parameter(s) as the field equipment wipe samples, (i.e., PCBs only).

Duplicate Samples

Duplicate samples will be sent for laboratory analysis to evaluate the reproducibility of the sampling technique used. At a minimum, five percent (i.e., one for every twenty samples) of each unique matrix type will be duplicated.

Matrix Spike/Matrix Spike Duplicate Samples

For the analysis of soil matrix spike/matrix spike duplicate (MS/MSD) samples required in the NYSDEC ASP-CLP methodologies, double sample volume will be collected at a specific location. MS/MSD samples will be collected at a frequency of one per twenty samples (i.e., five percent) or once per week, whichever is more frequent.

3.2.3 Analytical Data Handling, Reporting and Review

Analytical testing of the samples will be performed by a laboratory which is certified by New York State and is a participating member of the NYSDEC ASP-CLP program. The subcontractor laboratory will submit the reported analytical data in both hardcopy and diskette formats.

A limited QA/QC review of the data generated by the laboratory will be performed by the Project Chemist. This will include a review of the sample documentation, analytical data, holding times, and quality control results to ensure that data acceptance criteria were met.

3.3 SAMPLING PROGRAM

3.3.1 Mobilization and Demobilization

This subtask consists of field personnel orientation, equipment mobilization, the staking of sampling locations, and demobilization. Each field team member will attend an on-site orientation meeting to become familiar with the history of the site, health and safety requirements, and field investigation procedures.

Equipment mobilization will entail the ordering, purchase, and if necessary, fabrication of all sampling equipment needed for the field investigation. A complete inventory of available equipment will be conducted prior to initiating field activities. Any additional equipment required will be secured.

Locations for the soil borings will be staked at the start of the site operations. These locations will be measured from existing landmarks, and provisions will be made to accommodate any plant activities.

Equipment will be demobilized at the completion of each phase of field activities as necessary. Equipment demobilization may include (but will not be limited to) sampling equipment and drilling subcontractor equipment.

3.3.2 Site Survey

A survey of the NWIRP Bethpage site will be performed in order to link the pre-excavation sampling locations to the existing site survey map. Horizontal locations will be performed to the nearest foot and ground surface elevations to the nearest 0.10 foot.

3.3.3 Soil Sampling

Approximately 57 soil borings will be advanced on site to investigate the potentially contaminated areas (i.e., Sites 1 and 2). Samples will be taken at 4-foot intervals to a depth of 12 feet at each location (i.e., 4 samples - 0 feet, 4 feet, 8 feet, and 12 feet). Surface soil will be sampled and soil borings will be advanced and sampled in accordance with the procedures detailed in the SOPs presented below. Soil sampling locations are shown on Figure 3-2.

Surface Soil Sampling Procedure (SOP #2)

The surface soil sampling will be performed by the following procedure:

1. Wear appropriate health and safety equipment as specified in the site-specific HASP.

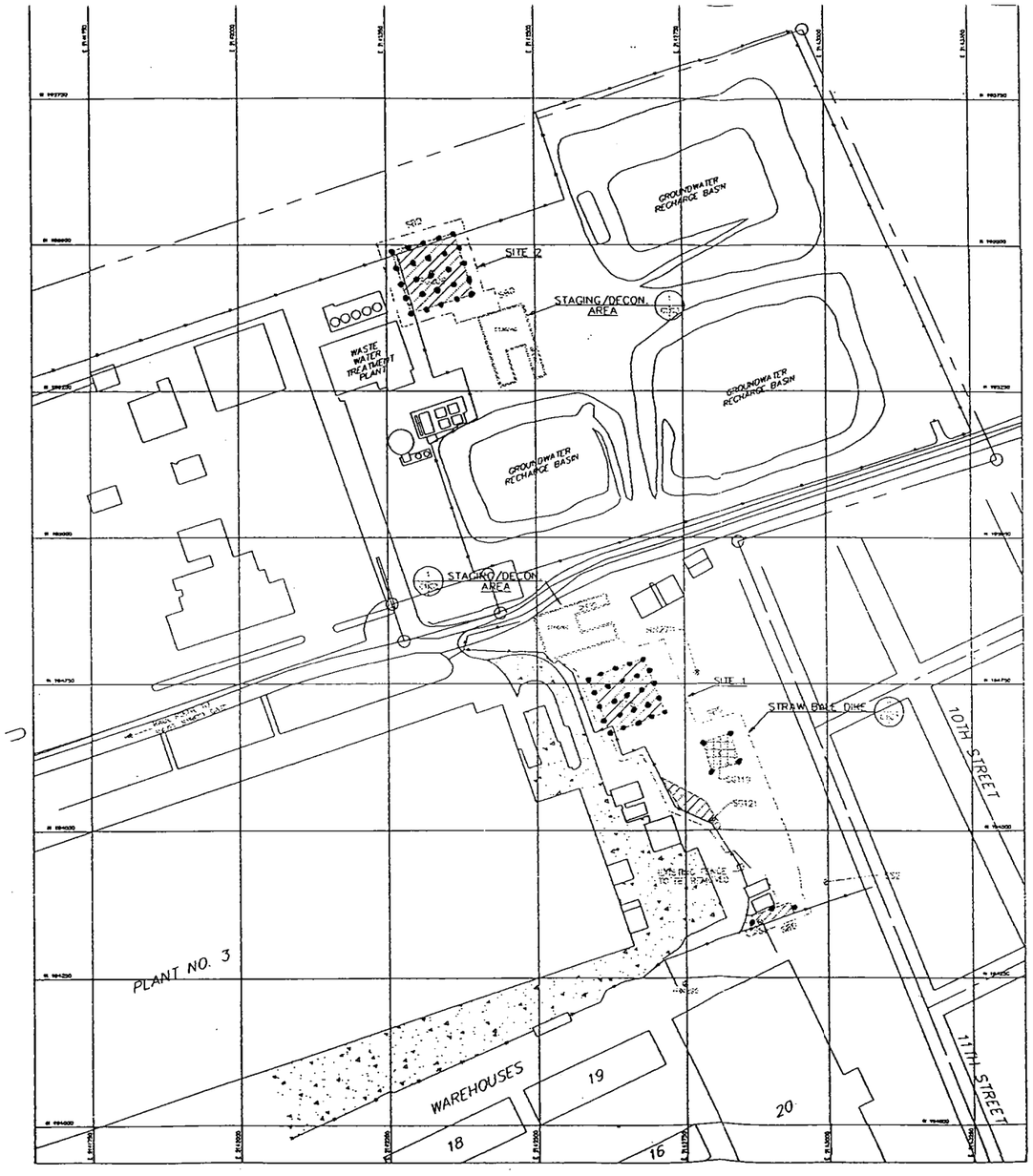
2. Use a decontaminated stainless steel scoop/trowel to scrape away surficial organic material (e.g., grass, leaves, etc.).

3. Once organic materials have been scraped away, scoop the underlying soil from the surface to 6 inches below the surface using the scoop/trowel.

4. Empty the contents of the scoop/trowel into a decontaminated stainless steel bowl or pan.

5. Repeat steps 2 and 3 until enough soil is collected to fill the required sample bottle containers.

6. Fill the sample containers with soil using a stainless steel utensil (e.g., scoop, spatula, spoon, etc.). VOA samples are to be taken as discrete grab samples, and the VOA sample



LEGEND:

- PROPERTY LINE
- EXISTING FENCE
- PCB AREA
- ARSENIC AREA
- EXISITING CONCRETE
- STAGING — STAGING AREA
- DECON — DECONTAMINATION AREA
- SOIL BORING LOCATION (APPROX)

NOTE:

STAGING AND DECONTAMINATION AREAS SHOWN ARE APPROXIMATE LOCATIONS. THE CONTRACTOR SHALL ADJUST LOCATIONS BASED UPON APPLICABLE TRAFFIC PATTERNS.

0 100 200 300

GRAPHIC SCALE

NAVAL WEAPONS RESERVE PLANT
BETHPAGE, N.Y.

FIGURE 3 - 2

SOIL BORING LOCATION MAP

FOSTER WHEELER ENVIRONMENTAL CORPORATION

bottles should be filled immediately so as to not compromise sample integrity. Soil samples for all other chemical analyses must be homogenized in the bowl/pan with a decontaminated stainless steel utensil prior to placement into the sample containers. Appropriately label each sample container.

7. Place the analytical samples in a sample cooler and chill to 4°C.

8. Complete the necessary sampling paperwork (e.g., sample labels, custody seals, chain-of-custody forms, etc.) for the analytical samples. Record the sample information in the field logbook.

Split-Spoon Sampling Procedure for Soil Borings (SOP #3)

The following procedure will be used for soil boring split-spoon sampling:

1. Wear appropriate health and safety equipment as specified in the site-specific HASP.

2. Drill a borehole to the desired sampling depth.

3. Drive a 2-inch carbon steel split-spoon sampler into the undisturbed soil which is to be sampled. A decontaminated split-spoon sampler will be used for each sample collected for chemical analyses.

4. Bring the sampler to the surface and remove both ends and one half of the split-spoon so that the recovered soil rests in the remaining half of the barrel. Place the split-spoon on clean polyethylene sheeting.

5. Fill the sample containers with soil using stainless steel spatulas or spoons. VOA samples are to be taken as discrete grab samples. These will be taken immediately from the entire length of the split-spoon (as appropriate), and properly packaged. Solid samples for all other chemical analyses must be homogenized in decontaminated stainless steel bowls with stainless steel utensils prior to being put into containers. Appropriately label each sample container.

6. Place the analytical samples in a sample cooler and chill to 4°C.

7. Complete the necessary sampling paperwork (e.g., sample labels, custody seals, chain-of-custody forms, etc.) for the analytical samples. Record sample information in the field logbook.

3.4 DECONTAMINATION

All equipment involved in field investigation activities will be decontaminated prior to and subsequent to sampling. Equipment leaving the site will also be decontaminated as required in the site-specific HASP.

All drilling equipment will be steam cleaned prior to use. Pressurized steam will be used to remove all visible excess material from augers, rods, drill bits, the back of the drilling rig, and other parts of the rig which contact augers, rods, and split-spoons. Steam cleaning will be conducted on the decontamination pad.

Decontamination of the downhole sampling equipment, including split-spoons, scoops/trowels and bailers will be conducted as described below:

1. Alconox detergent and potable water scrub.

2. Potable water rinse.

3. Ten percent (10%) nitric acid rinse (ultra pure grade) when sampling for inorganics. Carbon steel split-spoons (if used) will be rinsed with a one percent (1%) nitric acid solution to avoid stripping of metals.

4. Distilled or potable water rinse.

5. A methanol rinse followed by a hexane rinse (solvents are pesticide grade or better) for equipment involved in the sampling of organics.

6. Air dry.

7. Deionized water rinse.

8. Air dry (sufficient time will be allowed for the equipment to completely dry).

9. Wrap or cover exposed ends with aluminum foil (shiny surface out) for transport and handling.

Decontamination of the sampling equipment will be kept to a minimum in the field, and wherever possible, dedicated sampling equipment will be used. Decontamination fluids and drill cuttings will be stored in DOT-approved 17E or H 55-gallon drums.

Personnel directly involved in equipment decontamination will wear protective clothing, as stated in the site-specific HASP.

4.0 QA/QC VERIFICATION OF FIELD SAMPLING AND PROCEDURES FOR FIELD CHANGES AND CORRECTIVE ACTION

4.1 QA/QC FIELD AUDITS

Quality assurance and quality control during the sampling program will be performed by a Foster Wheeler Environmental QA/QC Officer. The QA/QC Officer will accompany sampling personnel into the field for one or two days to verify that sampling and documentation procedures are being correctly implemented according to the SAP. All findings will be documented to the Senior Project Manager.

4.2 FIELD CHANGES AND CORRECTIVE ACTION

The Senior Project Manager (SM), or his designee, shall be responsible for all site activities. In this role the SM at times is required to adjust the site programs to accommodate site-specific needs. When it becomes necessary to modify a program, the responsible sampling personnel shall notify the SM of the anticipated changes prior to implementing the necessary changes. Any changes will only be implemented upon receiving the SM's concurrence. The SM must consult the Navy Contracting Officer's technical representative ahead of time for major changes to the pre-excavation soil sampling program, and receive his/her approval. If these changes are subsequently determined to be unacceptable, the actions taken during the period of deviation shall be evaluated in order to determine the significance of any departure from established program practices.

The changes in the program shall be documented on a Field Change Request (FCR) which shall be signed by the a member of the sampling team and by the SM. A typical FCR Form utilized to document field changes is shown as Figure 4-1. The FCRs for each document shall be numbered serially starting with the number "01". A copy of the FCR Form shall be attached to the file copy of the SAP by the SM. The SM shall be responsible for the controiling, tracking and implementation of the identified changes.

FIGURE 4-1

FIELD CHANGE REQUEST FORM

Project Name:	Project No.:	Field Change Request No.: FCR-
To:	Location:	Date:

Description:

Reason for Change:

Recommended Disposition:

Name of Requester	Signature of Requester	Date

Disposition:

Name of Site Manager	Signature of Site Manager	Date

REFERENCES

HNUS, 1995. Halliburton NUS, "Final Submission for Remedial Design - Sites 1 and 2, Phase I, Naval Wapons Industrial Reserve Plant (NWIRP), Bethpage, New York," May 1995.

HNUS, 1993. Halliburton NUS, "Phase 2 Remedial Investigation Report for Naval Wapons Industrial Reserve Plant (NWIRP), Bethpage, New York," October 1993.

USEPA, 1985. United States Environmental Protection Agency, "Guidance on Remedial Investigations Under CERCLA," USEPA/540/6-85/002, June 1985.

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